

SERVICE MANUAL

Philips
BDL46xxE



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REVISION LIST

[illegible]

WARNING

This service information is designed for experienced repair technicians only and is not designed for use by the general public.

It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product.

Products powered by electricity should be serviced or repaired only by experienced professional technicians.

Any attempt to service or repair the product or products dealt within this service information by anyone else could result in serious injury or death.

SAFETY PRECAUTIONS

1. Caution

No modification of any circuit should be attempted. Service work should only be performed after you are through familiar with all of the following safety checks and servicing guide lines.

2. Safety check

Care should be taken while servicing this LCD display. Because of the high voltage used in the inverter circuit. These voltage are exposed in such areas as the associated transformer circuits.

3. Power supply requirements

The external power converter for this display utilizes AC and DC cords, AC cord is detachable, but DC cord is permanently attached. Any attempt to replace another adapter could result in serious problem on the display.

4. Leakage current hot check

4-1 Plug the AC cord directly into the AC outlet. Do not use an isolation transformer during this check.

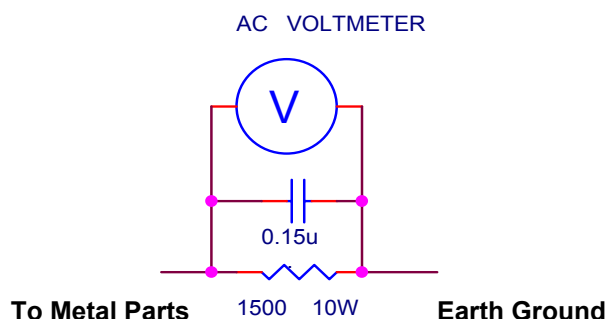
4-2 Connect a 1500 ohm, 10 watt resistor, paralleled by a 0.15uF capacitor between each metallic part and a good earth ground.

4-3 Use an AC voltmeter with 1000 ohm / volt or more sensitivity and measure the AC voltage across the combination 1500 ohm resistor and 0.15uF capacitor.

4-4 Move the resistor connection to each exposed metallic part and measure the voltage.

4-5 Reverse the polarity of the AC plug in the AC outlet and repeat the above measurement.

4-6 Voltage measured must not exceed 1.5 volt RMS, from any exposed metallic part to the ground. A leakage current tester may be used in the above hot check, in which case any circuit measured must not exceed 1 milliamp. In the case of a measurement exceeding the 1 milliamp value, a rework is required to eliminate the chance of a shock hazard.



GENERAL SPECIFICATION

Index of this chapter:

1. Specification
2. Pin assignment
3. Connection
4. Preset factory mode
5. Outline

1. Specification

Item	Specification
LCD panel size	46 inch
DCR	4000:1 (typical)
Viewing angle	Horizontal 178°, vertical 178° (typical)
Response time	8 ms (GTG)
Brightness	450 cd/m ² (typical)
Input signal	D-sub, HDMI, S-VIDEO, RS-232C, Audio
Display color	16.7 M colors
Frequency	31-91 kHz Horizontal, 50-75 Hz Vertical
Max resolution	1920 x 1080 (60Hz)
Max Pixel clock	165 MHZ
Tilt	0°
Audio output	Without Speaker
Power supply	100-240VAC, 50-60Hz
Power consumption	Display mode: Max 285W Sleeping mode: Less than 1W
Size (w/o packing)	Width: 1122.0 mm, Height: 704.6 mm, Depth: 405.1 mm
Net Weight	31.1 kg
Environmental conditions	Operating temperature: 5 ~ 40°C, Humidity: 20-80% Storage temperature: -20 ~ 60°C, Humidity: 10-90%

2. Pin assignment

2.1 15-pin D-sub connector

PIN	Signal
1	Red
2	Green
3	Blue
4	No Pin
5	Ground
6	Ground Red
7	Ground Green
8	Ground Blue
9	+5 V for DDC
10	Ground
11	Ground
12	SDA (DDC Data)
13	H – Sync
14	V – Sync
15	SCL (DDC Clock)

2.2 19-pin HDMI connector

PIN	Signal
1	TMDS Data2+
2	TMDS Data2 Shield
3	TMDS Data2-
4	TMDS Data1+
5	TMDS Data1 Shield
6	TMDS Data1-
7	TMDS Data0+
8	TMDS Data0 Shield
9	TMDS Data0-
10	TMDS Clock+
11	TMDS Clock Shield
12	TMDS Clock-
13	CEC
14	Reserved (N.C. on device)
15	SCL
16	SDA
17	DDC/CEC Ground
18	+5V Power
19	Hot Plug Detect

2.3 4-pin S-VIDEO connector

PIN	Signal
1	GND
2	GND
3	Y (Luminance)
4	C (Chroma)

2.4 9-pin RS-232C connector

PIN	Signal
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	RTS
8	CTS
9	NC

3. Connection

AUDIO IN 1, 2, 3

To input audio signal from external equipment such as a computer VCR or DVD player.

AUDIO OUT

To output the audio signal from the AUDIO IN 1, 2 and 3 jack.

EXTERNAL CONTROL (mini D-sub 9 pin)

Connect the IN connector with the RS-232C OUT connector of the computer or a multi-connected BDL46xxE monitor. Connect the OUT connector with the RS-232C IN connector of BDL46xxE monitor.

VIDEO IN/OUT

VIDEO IN connector(BNC and RCA): To input a composite video signal. BNC and RCA are not available at the same time.(Use only one input).

VIDEO OUT connector(BNC): To output the composite video signal from VIDEO IN connector.

S-VIDEO IN connector(Mini din 4 pin): To input the S-video (Y/C separate signal).

EXTERNAL SPEAKER TERMINAL

To output the audio signal from external speakers from AUDIO 1, 2, 3 jack or HDMI.

AC IN connector

Connectors with the supplied power cord.

RGB 1 IN(HDMI 1)

To input digital RGB signals from a computer.

* This connector does not supports analog input. AUDIO is supported via HDMI.

RGB 2 IN(HDMI 2)

To input digital RGB signals from computer.

* This connector does not support analog input. AUDIO is supported via HDMI.

RGB 3 IN(mini D-sub 15 pin)

To input a analog RGB signals from a computer or other RGB equipment.

RGB OUT (mini D-sub 15 pin)

To output the signal from RGB 3 N or 4 IN.

DVD/HD IN(Y, Pb/Cb, Pr/Cr)(BNC)

Connecting equipment such as a DVD player, HDTV device, or laser disc player.

4. Preset factory mode

All timings must be properly phased, sized and centered.

Full-Screen = The input timing is scaled to full screen, regardless of scaling artefacts

Aspect Ratio = Resolution to which the native is scaled and centered

COMPATIBILITY TABLE

Mode		Aspect Ratio Handling		Composite	SVHS	YPBPR	RGB	HDMI
Standard	Resolution	Full-Screen	Aspect Ratio					
VESA	640x480 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	640x480 @ 72Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	640x480 @ 75Hz	1920x 1080	16:9	N	N	N	Y	Y
	720x400 @ 70Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	800x600 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	1024x768 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
	1280 x 720 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
PD40	1280 x 768 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA(M9)	1280 x 768 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	1280x1024 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
M9	1360 x 768 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	1360 x 768 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
VESA	1600x1200 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
M9	1920x1080 @ 50Hz	1920x 1080	16:9	N	N	N	Y	Y
SMPTE	1920x1080 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
	1920x1080 @ 60Hz	1920x 1080	16:9	N	N	N	Y	Y
PAL	576i(50Hz)	1920x 1080	16:9					
NTSC	480i(60Hz)	1920x 1080	16:9					
DVD	480p(60Hz)	1920x 1080	16:9					
	480i(60Hz)	1920x 1080	16:9					
	720p(50Hz)	1920x 1080	16:9					
	720p(60Hz)	1920x 1080	16:9					
	1080i (50Hz)	1920x 1080	16:9					
	1080i (60Hz)	1920x 1080	16:9					

OVERSCAN

Component over scan: 5~8%

AV over scan: 5~9%

HDMI/DVI-D over scan: No over scan for PC input, 5~9% for video source.

PC: No over scan

ASIC FOS Performance (excluding Scaling Artifacts) will be judged according to:

Definition of “COMPATIBLE MODE”:

ASIC correctly recognizes the proper resolution and applies the correct display scaling to the image. (I.e. a 1280 x 720 signal is properly recognized)

Definition of “PROPERLY SIZED / CENTERED”:

The Entire Image (use Display Mate “Side Tics” pattern) perfectly fits the screen. Even one pixel off in Horizontal or Vertical Direction, makes this area “FAIL”.

Definition of “PROPERLY PHASED”:

ASIC automatically computes the correct A/D response so that a Win98 “SHUTDOWN” or “ALL” Display Mate “MOIRE” Patterns are correctly displayed. Most critical on the panels “NATIVE”; No ‘unstablensess’ of the image shall be observed.

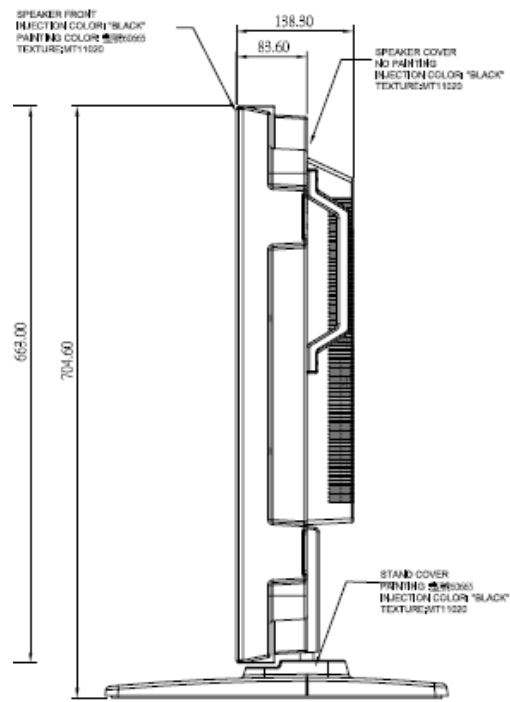
Definition of “HD Compatibility”:

All HD timings have to work through YPbPr, HDMI, and RGB.

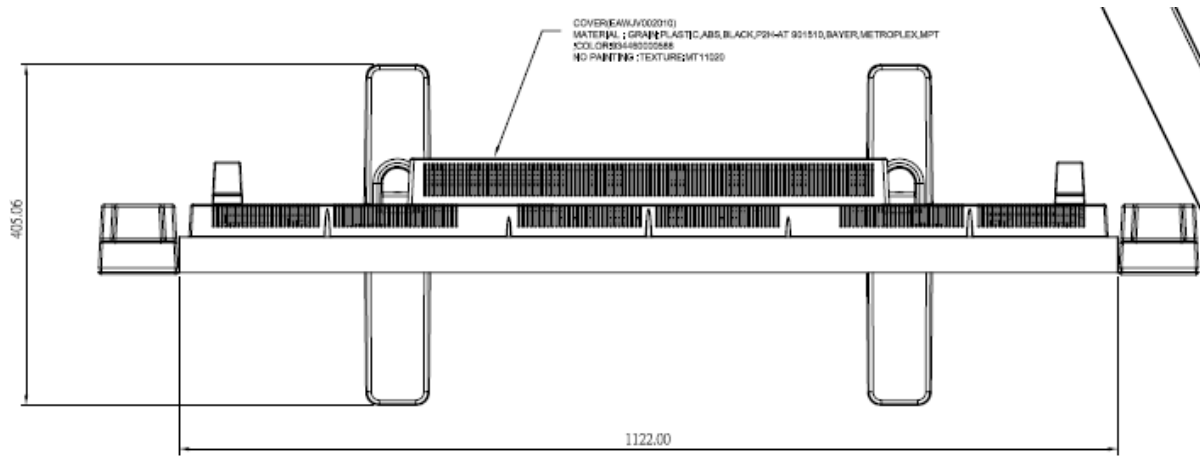
5.1 Front view



5.3 Side view



5.4 Top view






OPERATING INSTRUCTIONS

Index of this chapter:

1. Front-panel controls
2. OSD menu

1. Front-panel controls

All keys are located at the right edge of the display bezel.

EXET			-	+	INPUT	MUTE	
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The following front panel controls are available for this product.


EXIT: Located at the right edge of the display that serves as a dual function switch. It is used to exit the menu if the OSD is on. When the OSD is off, it functions as an Aspect Ratio Control.




CHANNEL ▲/▼: Navigate through OSD depending on mode.

VOLUME +/-: Change Volume or navigate through OSD depending on mode.

INPUT: Select input from PC, HDMI, component, composite.

MUTE: Switch audio on/off.

POWER  : It is a soft power switch and not a main disconnection device. Main disconnection shall be accomplished by physically removing the power cord from the display.

Combination Key						
Function				-	+	MUTE
Enter Factory Mode	v		v			
Enter Factory Reset				v		v
Lock Front button		v	v			
Reload Color Temperature	v			v	v	

LED Control		
Status	LED Red	LED Green
AC Power Off	OFF	OFF
Standby Mode	ON	OFF
On Mode	OFF	ON
Power saving (when no OSD)	ON	ON
Schedule Standby	ON	Blinking(500mSec)
Fan defect mode	Blinking(500mSec)	Depends on SET condition
Factory mode	OFF	ON

* Note: Panel performance characteristics “ MUST BE” met in all display modes/inputs at standard test conditions.

2. OSD menu

All audio/video and other output controls shall be performed by using an On Screen Display (OSD) via a Remote Control Unit in conjunction with the front panel controls. The following tables list the OSD functions supported by BDL46xxE.

Level 1	Level 2	Level 3
PICTURE	BRIGHTNESS	0-100
	CONTRAST	0-100
	SHARPNESS	0-100
	BLACK LEVEL	0-100
	NOISE REDUCTION	OFF/ LOW/ MIDDLE/ HIGH
	TINT	
	(Input: HDMI-Video timing, DVI-D(HD timing), CVI, VIDEO only)	0-100
	COLOR	
	(Input: HDMI-Video timing, DVI-D(HD timing), CVI, VIDEO only)	0-100
	COLOR TEMPERATURE	5000K/ 6500K/ 7500K/ 9300K/ 10000K/ 11000K/ USER
SCREEN	COLOR CONTROL	RED: 0-255 GREEN: 0-255 BLUE: 0-255
	PICTURE RESET	NO/ YES
	H-POSITION	0-100
	V-POSITION	0-100
	CLOCK	
	(Input: PC-A only)	0-100
	CLOCK PHASE	
	(Input: PC-A only)	0-100
	ZOOM MODE	PC: FULL/ NORMAL/ CUSTOM/ REAL(OFF) VIDEO: FULL/ NORMAL/ DYNAMIC/ CUSTOM/ REAL(OFF)
	CUSTOM ZOOM	ZOOM H ZOOM V ZOOM H POSITION V POSITION
AUDIO	SCREEN RESET	NO/YES
	BALANCE	0-100
	TREBLE	0-100
	BASS	0-100
PIP	AUDIO RESET	NO/YES
	PIP SIZE	LARGE/ MIDDLE/ SMALL
	PIP AUDIO	MAIN/ SUB
	PIP RESET	NO/ YES
CONFIGURATION1	AUTO ADJUST	
	(Input: PC-A only)	
	POWER SAVE	RGB: ON/ OFF VIDEO: ON/ OFF
	LANGUAGE	ENGLISH/ FRENCH/ GERMAN/ SPANISH/ RUSSIAN/ ITALIAN/ POLISH/ TURKISH/ SIMPLIFY CHINESE
	PANEL SAVING	COOLING FAN: ON/ AUTO BRIGHTNESS: ON/ OFF PIXEL SHIFT: OFF/ 10-999sec
	COLOR SYSTEM	
	(Input: VIDEO only)	AUTO/ NTSC/ PAL/ SECAM/ 4.43NTSC/ PAL-60
	CONFIGURATION RESET	NO/ YES
	FACTORY RESET	NO/ YES
	OSD TURN OFF	OSD TURN OFF
CONFIGURATION2	INFORMATION OSD	ON(1-10sec)/ OFF

ADVANCED OPTION	SLEEP TIMER	ON(1-24Hour)/ OFF
	OSD H-POSITION	0-100
	OSD V-POSITION	0-100
	MONITOR INFORMATION	MODEL NAME
		SERIAL NO
		OPERATION HOURS
		SW VERSION
	INPUT RESOLUTION (Input: PC-A only)	
	BLACK LEVEL EXPANSION (Input: VIDEO only)	High/ Middle/ Low/ OFF
	GAMMA SELECTION	2.2/2.4/ S GAMMA/ NATIVE
	SCAN MODE (Input: HDMI-Video timing, DVI-D(HD timing), CVI, VIDEO only)	OVER SCAN/ UNDER SCAN
	SCAN CONVERSION	PROGRESSIVE/ INTERLACE
	FILM MODE (Input: CVI, VIDEO only)	AUTO/ OFF
	IR CONTROL	NORMAL/ LOCK/ PRIMARY/ SECONDARY
	KEYBOARD CONTROL	NO/ YES
	TILING	H MONITORS
		V MONITORS
		POSITION
		FRAME COMP
		ENABLE
	DATE AND TIME	YEAR
		MONTH
		DAY
		HOUR
		MINUTE
		DAYLIGHT SAVING
SCHEDULE	CURRENT DATE TIME	
	ITEM	
	ON TIME	HOUR:MINUTE
	OFF TIME	HOUR:MINUTE
	INPUT	
	EVERYDAY	
	MON	
	TUE	
	WED	
	TUR	
	FRI	
	SAT	
	SUN	
	EVERYWEEK	
MONITOR ID	DDC/CI	ON/ OFF
	HEAT STATUS	
	SMART POWER	OFF(LOW)/ MEDIUM/ HIGH
	ADVANCED OPTION RESET	NO/ YES

THEORY OF OPERATION

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1. Mstar MST5251A scaler
2. NECuPD64015 Video Decoder
3. TI PCM1753 Audio DAC
4. JRC NJW1141 Audio Processor
5. Winbond W79E659 MCU
6. Fintek F75101R GPIO Expander
7. Eon EN29F040A 4MBit Flash
8. YAMAHA YDA138 Audio Amplifier
9. Sipex SP3243 RS232 Transceiver
10. Mitsumi MM1671 Low Supply Voltage 75 Ohm Driver
11. EtronTech EM636165TS-5G SDRAM
12. National Semiconductor LM1881 Video Sync Separator NXP PCF8563 RTC
13. NXP PCF8563 RTC
14. ST TSH340 Video Buffer Pericom PI5C3253 Dual 1-of-4 FET Multiplexer / Demultiplexer
15. Pericom PI5C3253 Dual 1-of-4 FET
16. ESMT M13S128324A DDR SDRAM
17. ATMEL AT24C64AN EPROM

1. Mstar MST5251A scaler

The MST5251A is a high performance and fully integrated graphics processing IC solution for multi-function LCD monitor/TV with resolutions up to UXGA/WUXGA. It is configured with an integrated triple-ADC/PLL, an integrated DVI/HDCP/HDMI receiver, two video de-interlacers, two high quality scaling engines, an on-screen display controller, and a built-in output clock generator. By use of external frame buffer, PIP/POP is provided for multimedia applications. It supports de-interlaced full-screen video, video-on-graphic overlay, split screen, frame rate conversion, and aspect ratio conversion for various video sources. To further reduce system costs, the MST5251A also integrates intelligent power management control capability for green-mode requirements and spread spectrum support for EMI management.

2. NEC uPD64015 Video Decoder

The uPD64015 is a video decoder LSI with an on-chip three-dimensional Y/C separation function that supports NTSC-M and PAL-BDGH composite signals and a three-dimensional noise reduction function that supports all input signals. It includes four high-accuracy A/D converter channels for analog video input, an anti-alias filter, Y/C separation, chroma decoding supporting NTSC/PAL/SECAM, three-dimensional noise reduction supporting all input signals, and various definition correction functions, and supports digital color difference output. The uPD64015 incorporates a 3-ch DAC and can output decoded video signals or signals output from the incorporated SG (Signal Generator), in the form of RGB or analog color-difference signals.

3. TI PCM1753 Audio DAC

The PCM1753/54/55 is a CMOS, monolithic, integrated circuit, which includes stereo digital-to-analog converters and support circuitry in a small 16-lead SSOP package. The data converters use TI's enhanced multilevel delta-sigma architecture, which employs 4th-order noise shaping and 8-level amplitude quantization to achieve excellent dynamic performance and improved tolerance to clock jitter. The PCM1753/54/55 accepts industry standard audio data formats with 16- to 24-bit data, providing easy interfacing to audio DSP and decoder chips. Sampling rates up to 200 kHz are supported. A full set of user programmable functions is accessible through a three-wire serial control port, which supports register write functions.

4. JRC NJW1141 Audio Processor

The NJW1141 is a sound processor that includes all of the functions required to process the audio signal for TV, such as tone control, balance, volume, mute, and AGC functions. All of the internal status and

variables are controlled by I2C BUS Interface.

5. Winbond W79E659 MCU

The W79E659 is a fast, 8051/52-compatible microcontroller with a redesigned processor core that eliminates wasted clock and memory cycles. Typically, the W79E659 executes instructions 1.5 to 3 times faster than that of the traditional 8051/52, depending on the type of instruction, and the overall performance is about 2.5 times better at the same crystal speed. As a result, with the fully-static CMOS design, the W79E659 can accomplish the same throughput with a lower clock speed, reducing power consumption. The W79E659 provides 256 bytes of on-chip RAM; 1-KB of auxiliary RAM; seven 8-bit, bi-directional and bit-addressable I/O ports; an additional 4-bit port P4; three 16-bit timer/counters; an UART serial port, 2 channels of I2C with master/slave capability and 8 channels of 10-bit ADC. These peripherals are all supported by ten interrupt sources with 2 levels of priority. The W79E659 contains a 32-KB Flash EPROM whose contents may be updated in-system by a loader program stored in an auxiliary, 4-KB Flash EPROM. Once the contents are confirmed, it can be protected for security.

6. Fintek F75101R GPIO Expander

The F75101R is a multifunctional general purpose IO chip providing 16 GPIO powered by 3VSB by power on setting. Level or pulse modes can be programmed by registers. With 2 sets of watchdog timer, F75101R provides more flexible control for system.

7. Eon EN29F040A 4MBit Flash

The EN29F040A is a 4-Megabit, electrically erasable, read / write non-volatile flash memory. organized into 512K words with 8 bits per word, the 4M of memory is arranged in eight uniform sectors of 64Kbytes each. Any byte can be programmed typically in 10 μ s. The EN29F040A features 5.0V voltage read and write operation, with access times as fast as 45ns to eliminate the need for WAIT states in high-performance microprocessor systems.

8. YAMAHA YDA138 Audio Amplifier

YDA138 (D-3) is a high efficient digital audio power amplifier IC that operates with a single 12V power supply. An audio power amplifier with a maximum output of 10W (RL=8 Ω) 2ch can be configured with one chip. YDA138 has a "Pure Pulse Direct Speaker Drive Circuit" which directly drives speakers while reducing distortion of pulse output signal and reducing noise on the signal, and realizes the highest standard low distortion rate characteristics and low noise characteristics as 10W-class of output digital amplifier IC. In addition, circuit design with fewer external parts can be made depend on the condition of use because corresponds to filter less. YDA138 provides Overcurrent protection function for speaker output terminals, IC thermal protection function, POP noise reduction function, and AM interference measures function as well as power-down function and output mute function.

9. Sipex SP3243 RS-232 transceiver

The SP3243 transceivers meet the EIA/TIA-232 and ITU-T V.28/V.24 communication protocols. generate 5.5V RS-232 voltage levels from a single +3.0V to +5.5V power supply and operate at a data rate of 120kbps fully loaded. The SP3243 devices feature circuitry automatically wakes up from . It occurs after a RS-232 cable being disconnected. Under this condition, the internal charge pump and the drivers will be shut down. Otherwise, the system automatically comes online.

10. Mitsumi MM1671 Low Supply Voltage 75 Ohm Driver

This IC is a 75 Ω driver with a built-in LPF that can operate at low voltage. It supports 3V and 5V operating power voltage, and is ideal for video signal output in devices ranging from portable digital still cameras to stationary equipment such as DVD players. It incorporates a high performance 4-stage LPF, which is ideal for removing DAC sampling noise. In addition, ultra-low current consumption has been achieved by the batteries in portable devices. The built-in amp gain on this IC is available in series: 6dB/9dB/12dB/16.5dB, thus enabling support for DAC and a variety of output amplitudes. There is also a series with input clamp and one without, allowing support for a range of video signals, not just composite signals.

11. EtronTech EM636165TS-5G SDRAM

The EM636165 SDRAM is a high-speed CMOS synchronous DRAM containing 16 Mbits. It is

internally configured as a dual 512K word x 16 DRAM with a synchronous interface (all signals are registered on the positive edge of the clock signal, CLK). Each of the 512K x 16 bit banks is organized as 2048 rows by 256 columns by 16 bits. Read and write accesses to the SDRAM are burst oriented; accesses start at a selected location and continue for a programmed number of locations in a programmed sequence. Accesses begin with the registration of a BankActivate command which is then followed by a Read or Write command. The EM636165 provides for programmable Read or Write burst lengths of 1, 2, 4, 8, or full page, with a burst termination option. An auto precharge function may be enabled to provide a self-timed row precharge that is initiated at the end of the burst sequence. The refresh functions, either Auto or Self Refresh are easy to use. By having a programmable mode register, the system can choose the most suitable modes to maximize its performance. These devices are well suited for applications requiring high memory bandwidth and particularly well suited to high performance PC applications.

12. National Semiconductor LM1881 Video Sync Separator

The LM1881 Video sync separator extracts timing information including composite and vertical sync, burst/back porch timing, and odd/even field information from standard negative going sync NTSC, PAL*, and SECAM video signals with amplitude from 0.5V to 2V p-p. The integrated circuit is also capable of providing sync separation for non-standard, faster horizontal rate video signals. The vertical output is produced on the rising edge of the first serration in the vertical sync period. A default vertical output is produced after a time delay if the rising edge mentioned above does not occur within the externally set delay period, such as might be the case for a non-standard video signal.

13. NXP PCF8563 RTC

The PCF8563 is a CMOS real-time clock/calendar optimized for low power consumption. A programmable clock output, interrupt output and voltage-low detector are also provided. All address and data are transferred serially via a two-line bidirectional I2C-bus. Maximum bus speed is 400 kbits/s. The built-in word address register is incremented automatically after each written or read data byte.

14. ST TSH340 Video Buffer

The TSH340 is a video buffer featuring a gain of 6dB. A large bandwidth of 300MHz for only 9.4mA of quiescent current allows the TSH340 to achieve a gain flatness of 220MHz. Its structure features a very high slew rate of 540V/ μ s minimum guaranteed by test. Associated to a very good THD these characteristics are particularly intended in the high quality video systems. The TSH340 is available in tiny SOT23-5 and SO8 plastic packages for size saving consideration.

15. Pericom PI5C3253 Dual 1-of-4 FET Multiplexer / Demultiplexer

Pericom Semiconductor's PI5C3253 is a Dual 4:1 Multiplexer / demultiplexer with three-state outputs that is pinout compatible with the PI74FCT253T, 74F253, and 74ALS/AS/LS 253. Inputs can be connected to outputs with low on resistance (5 Ω) with no additional ground bounce noise or propagation delay.

16. ESMT M13S128324A DDR SDRAM

17. ATMEL AT24C64AN EPROM

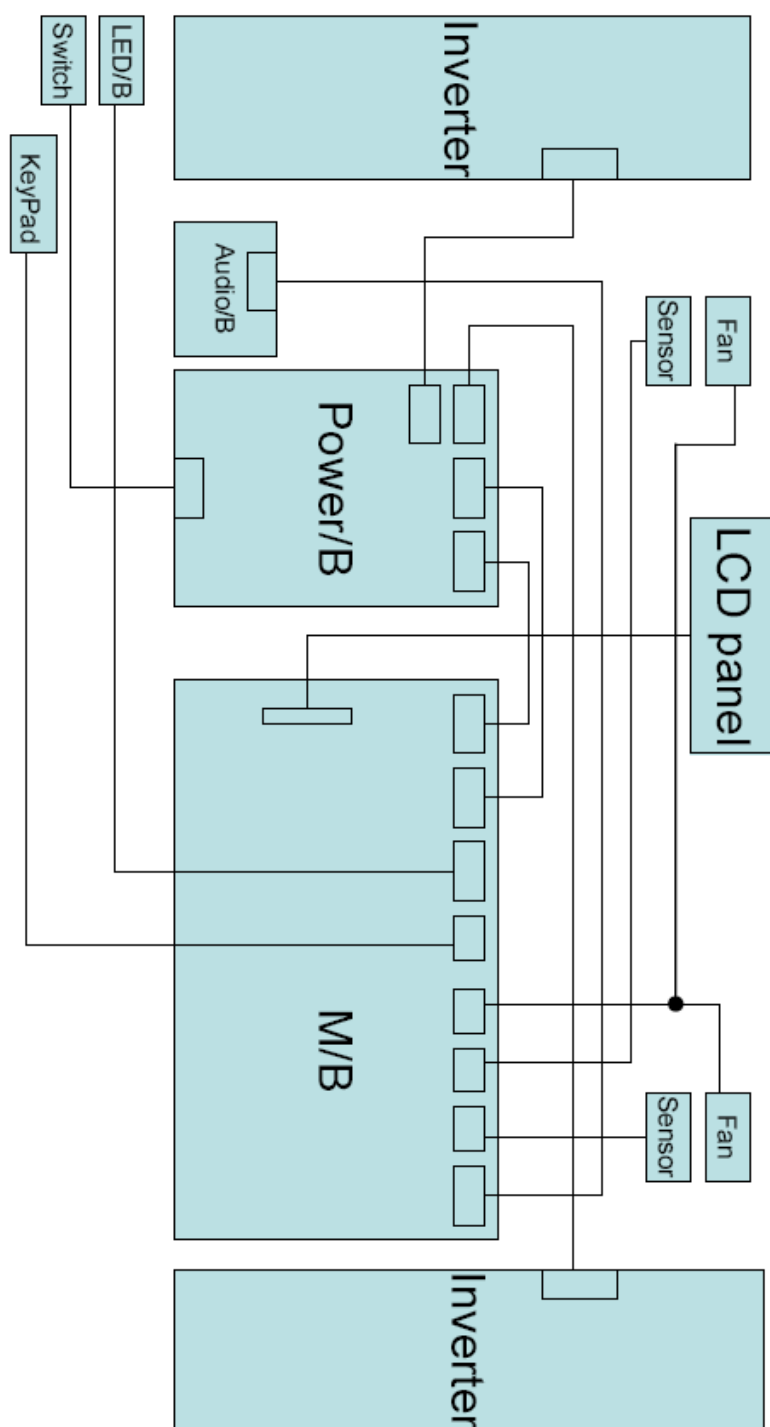
The AT24C32A/64A provides 32,768/65,536 bits of serial electrically erasable and programmable read only memory (EEPROM) organized as 4096/8192 words of 8 bits each. The device's cascadable feature allows up to 8 devices to share a common twowire bus. The device is optimized for use in many industrial and commercial applications where low power and low voltage operation are essential. The AT24C32A/64A is available in space saving 8-lead JEDEC PDIP, 8-lead JEDEC SOIC, 8-lead EIAJ SOIC, 8-lead Mini-MAP (MLP 2x3) and 8-lead TSSOP packages and is accessed via a 2-wire serial interface. In addition, the entire family is available in 2.7V (2.7V to 5.5V) and 1.8V (1.8V to 5.5V) versions.

BLOCK DIAGRAM

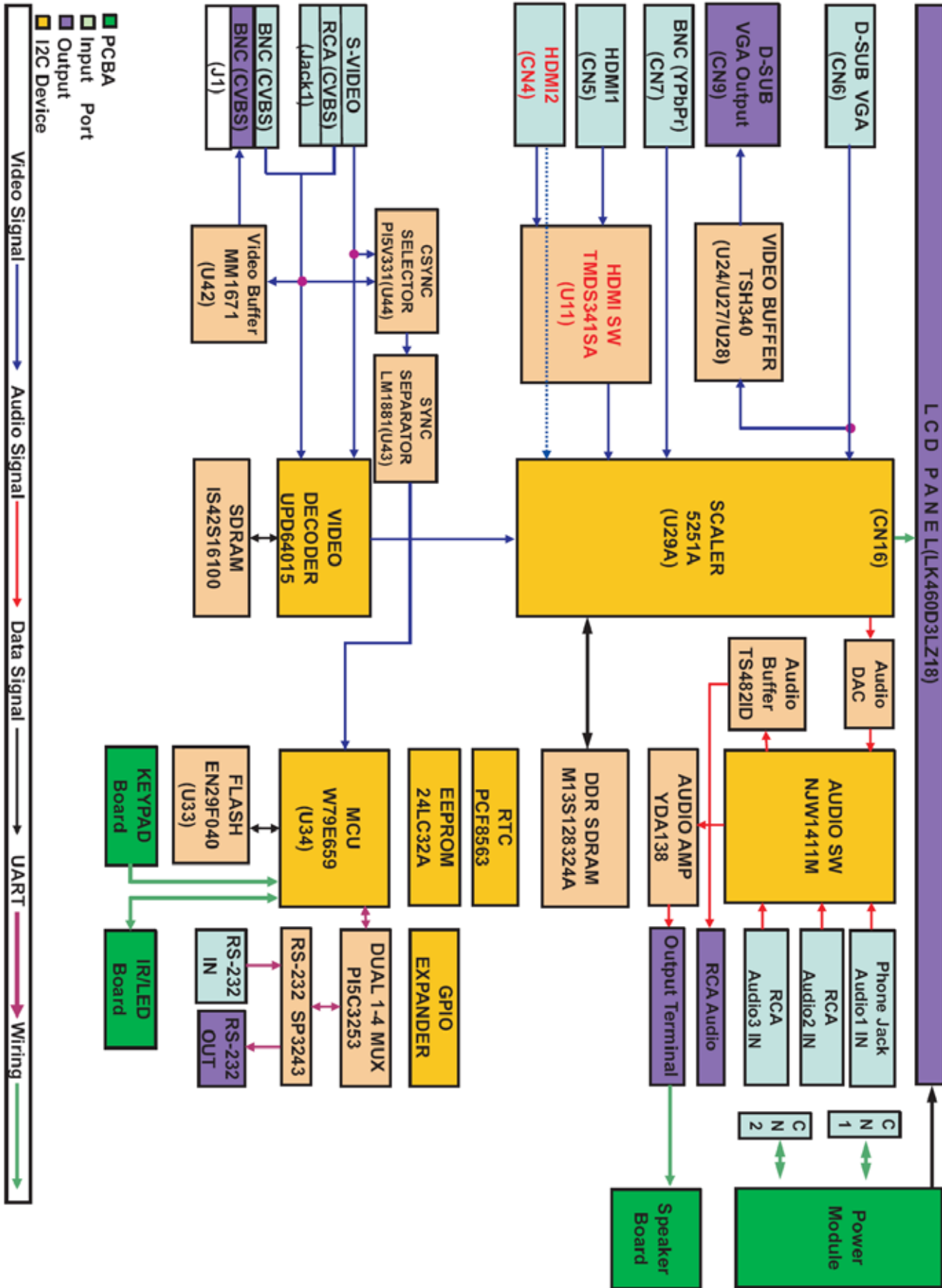
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1. Wiring diagram
2. Block diagram

1. Wiring diagram



2. Block diagram

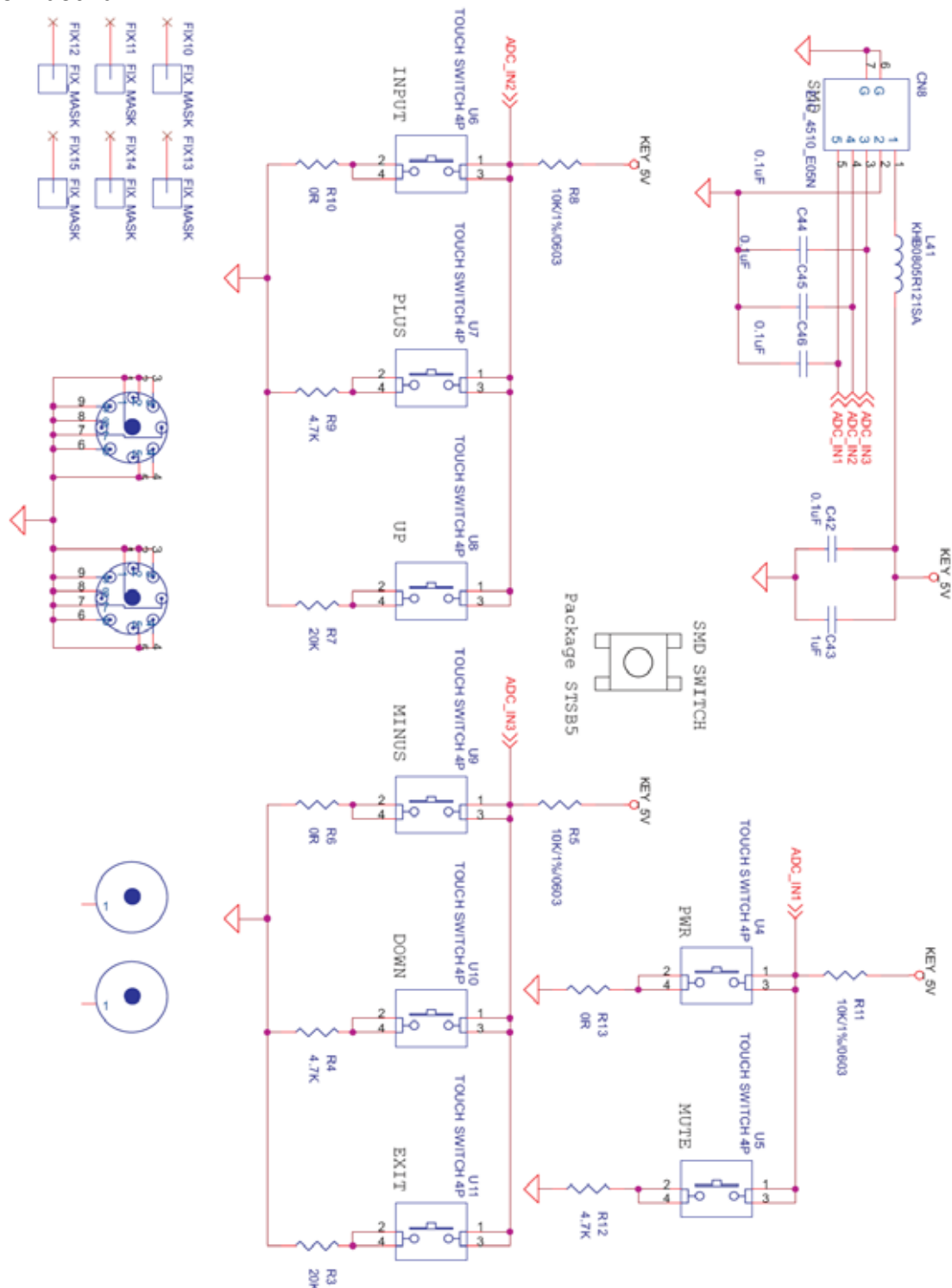


SCHEMATIC DIAGRAM

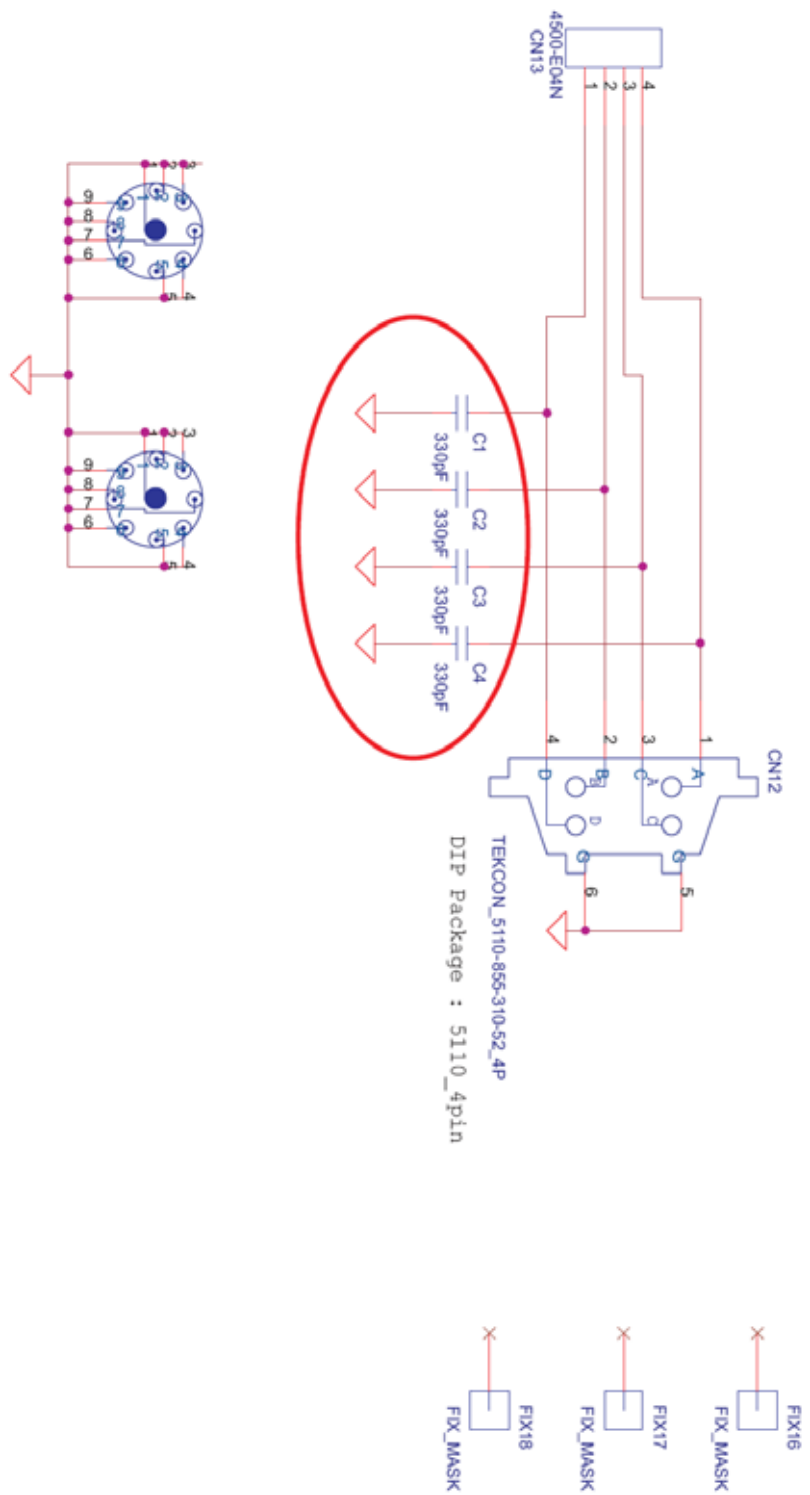
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1. Button board
2. Daughter board
3. LED board
4. Sensor board
5. Main board
6. Power board

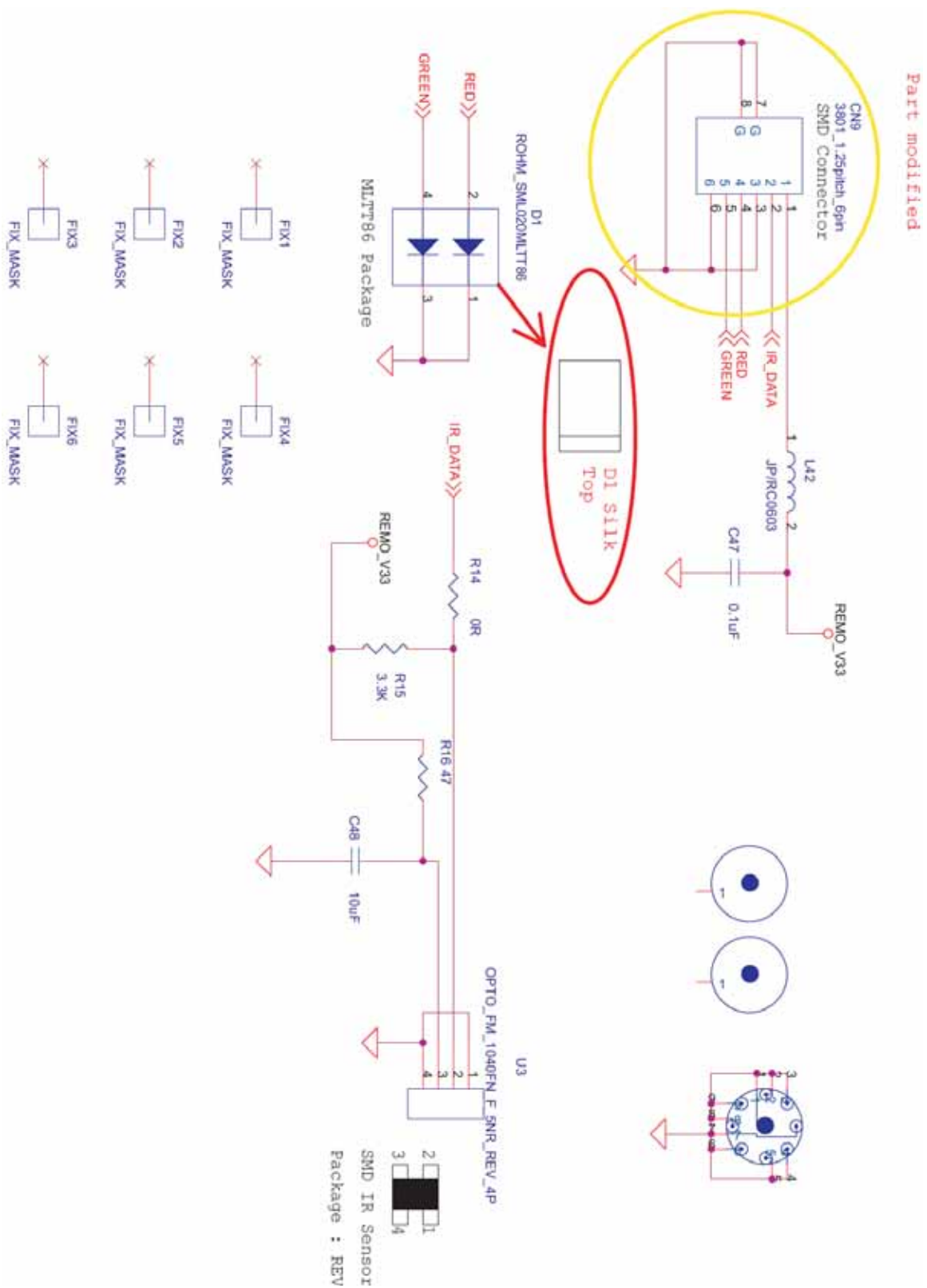
1. Button board



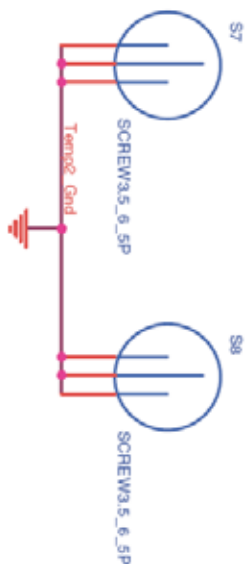
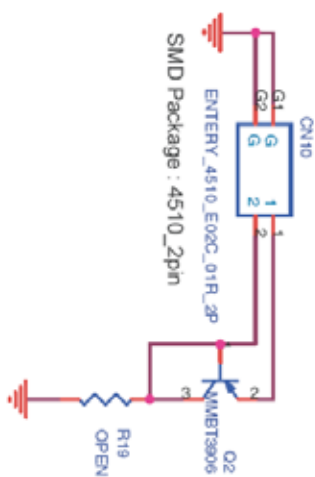
2. Daughter board



3. LED board

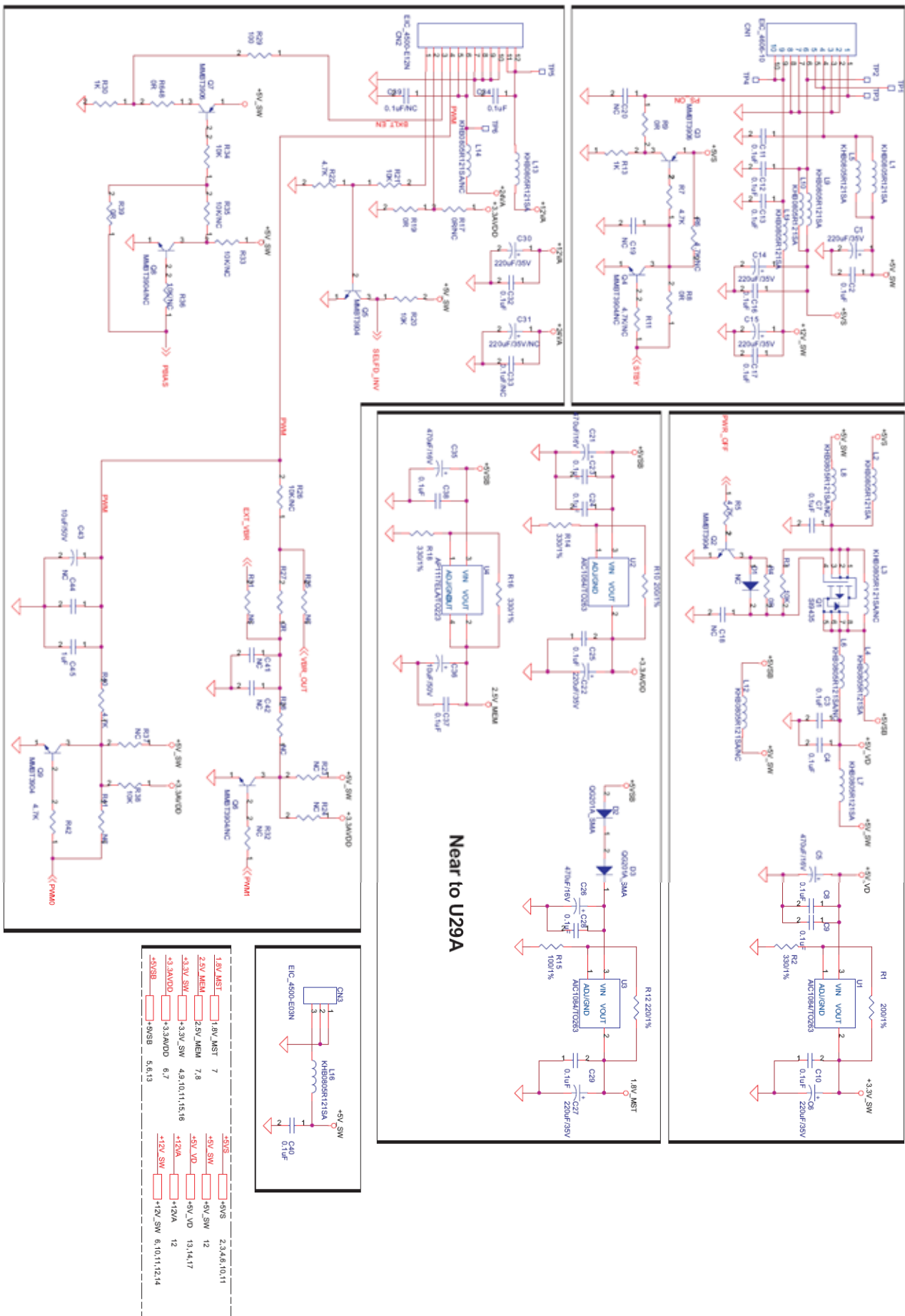


4. Sensor board

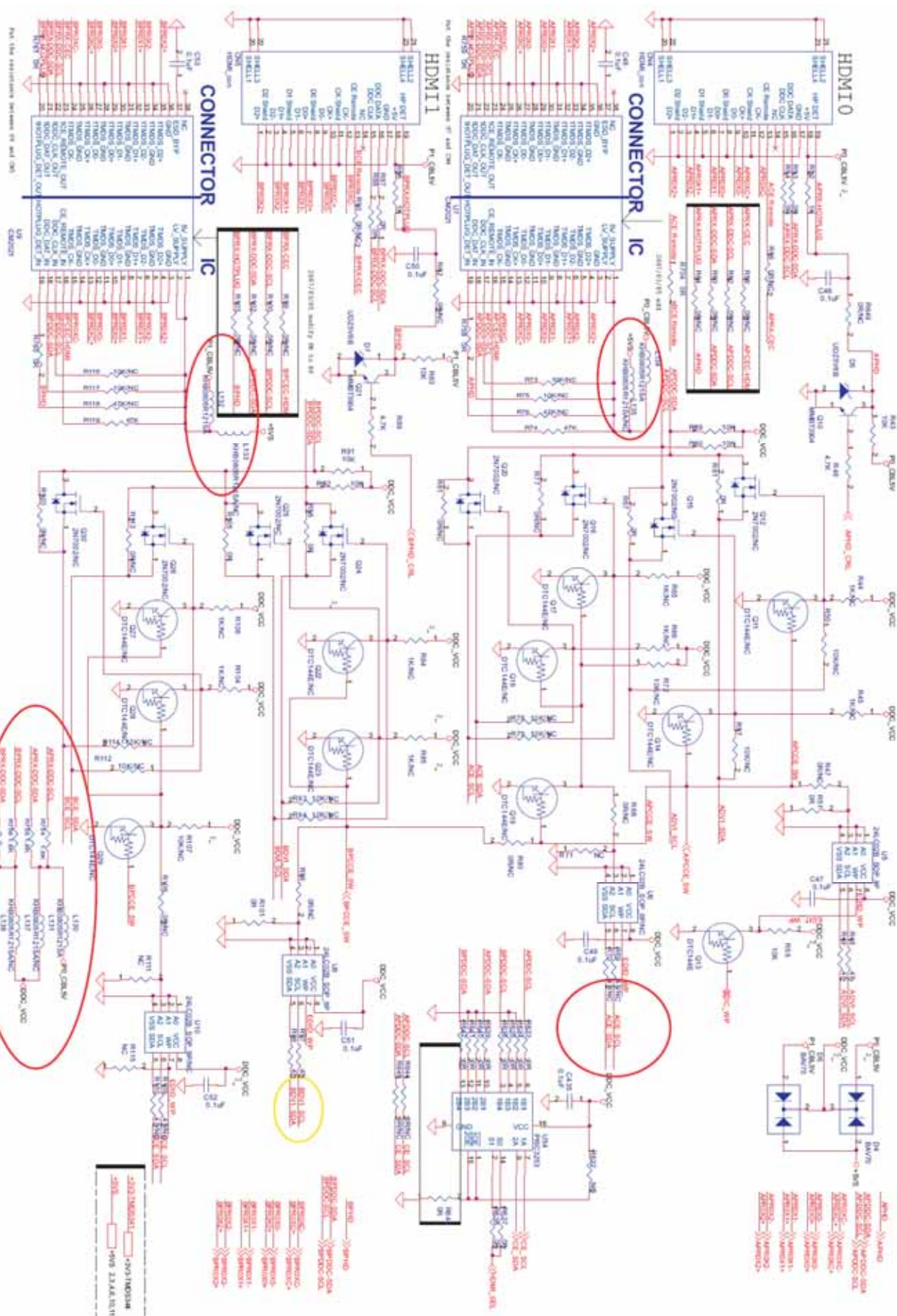


5. Main board

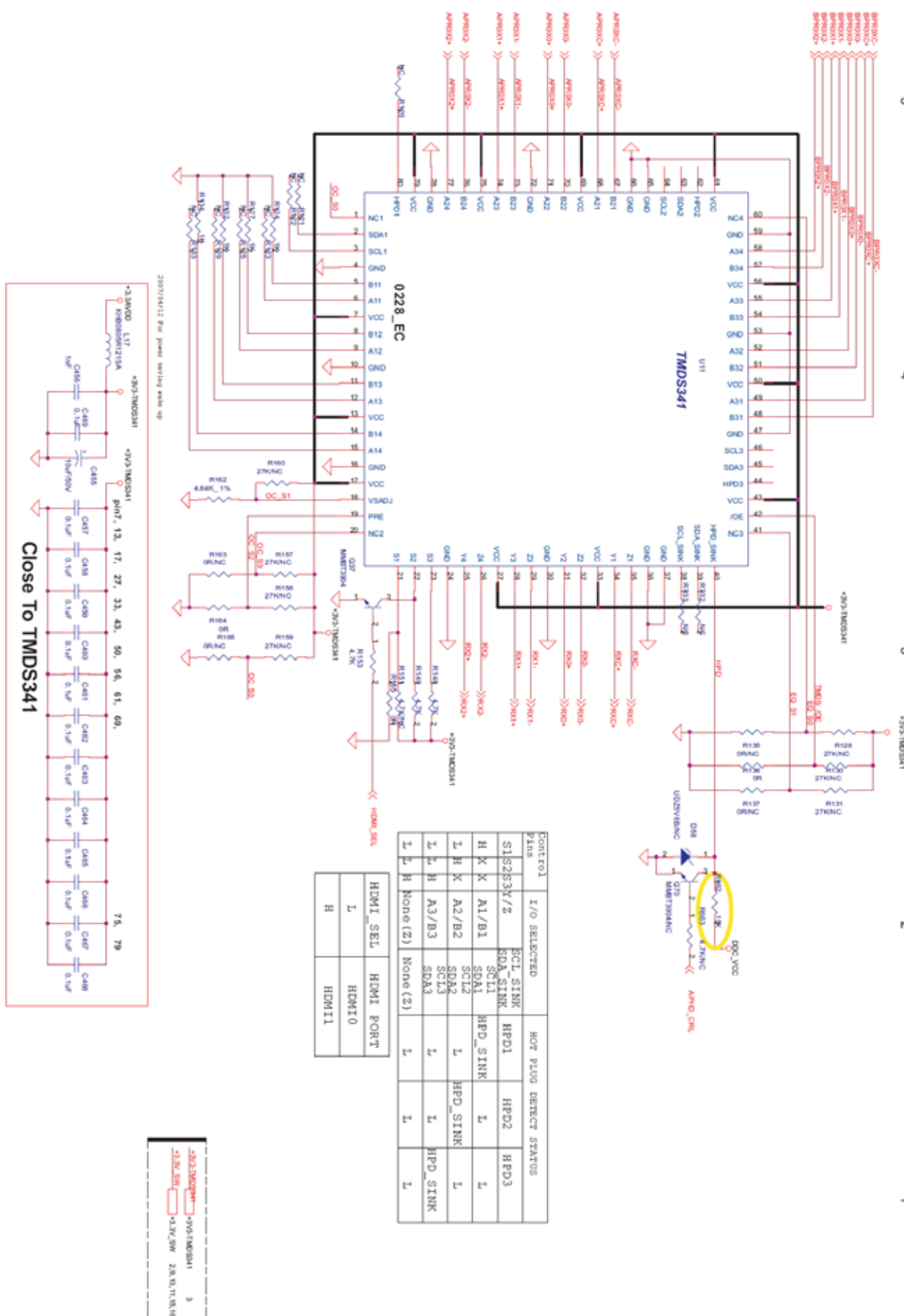
5.1 Power



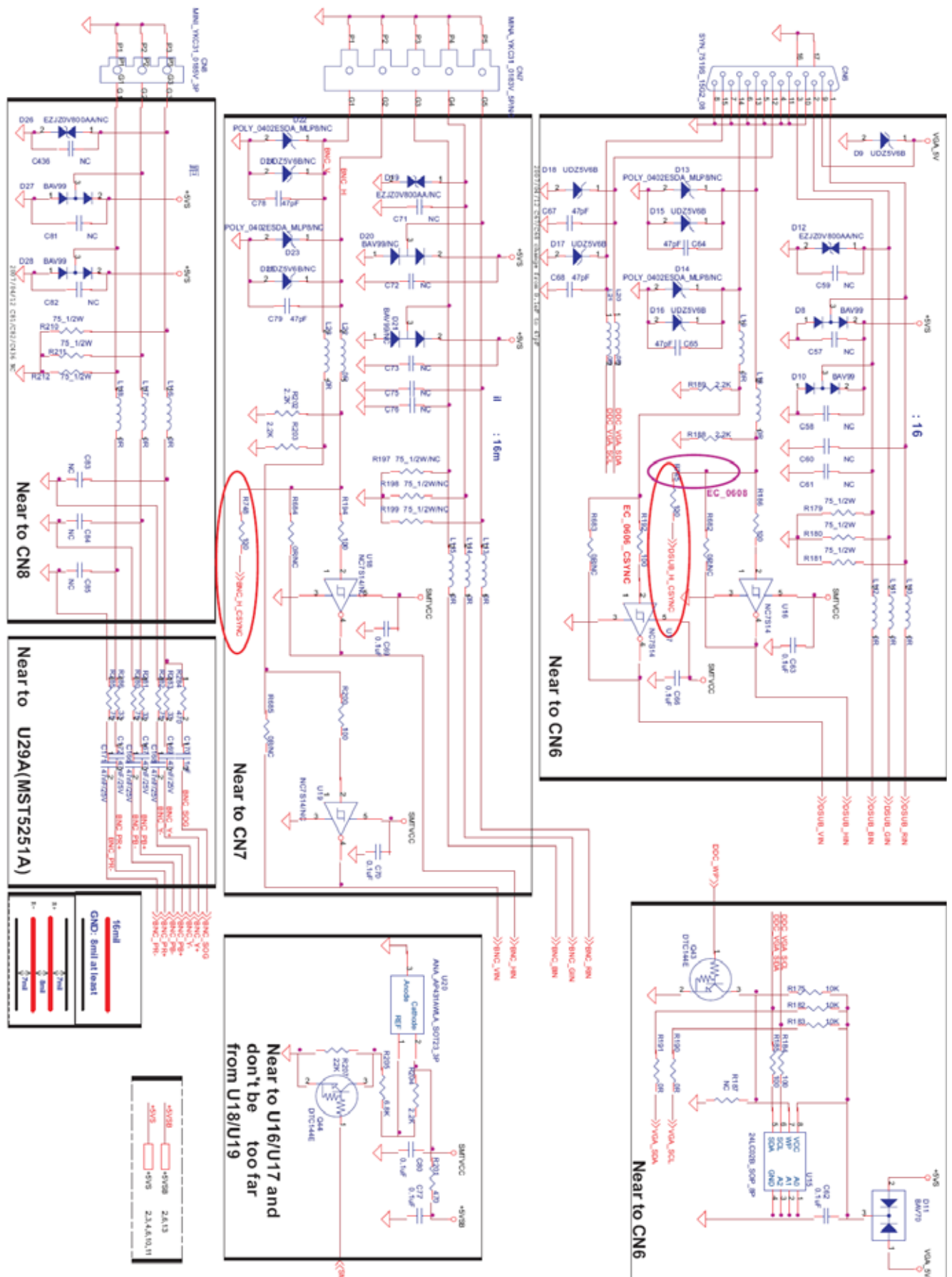
5.2 HDMI Input



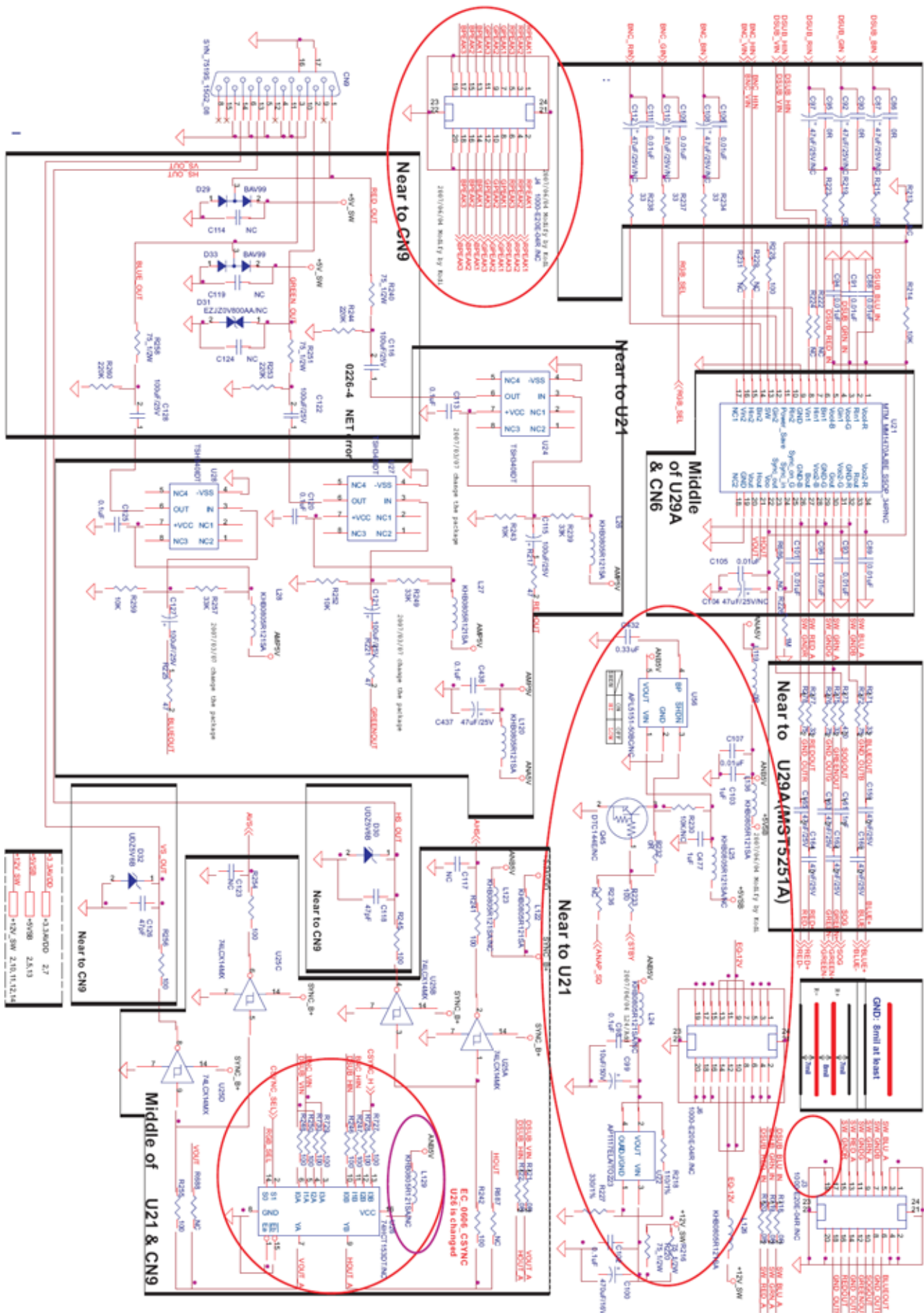
5.3 HDMI Switch



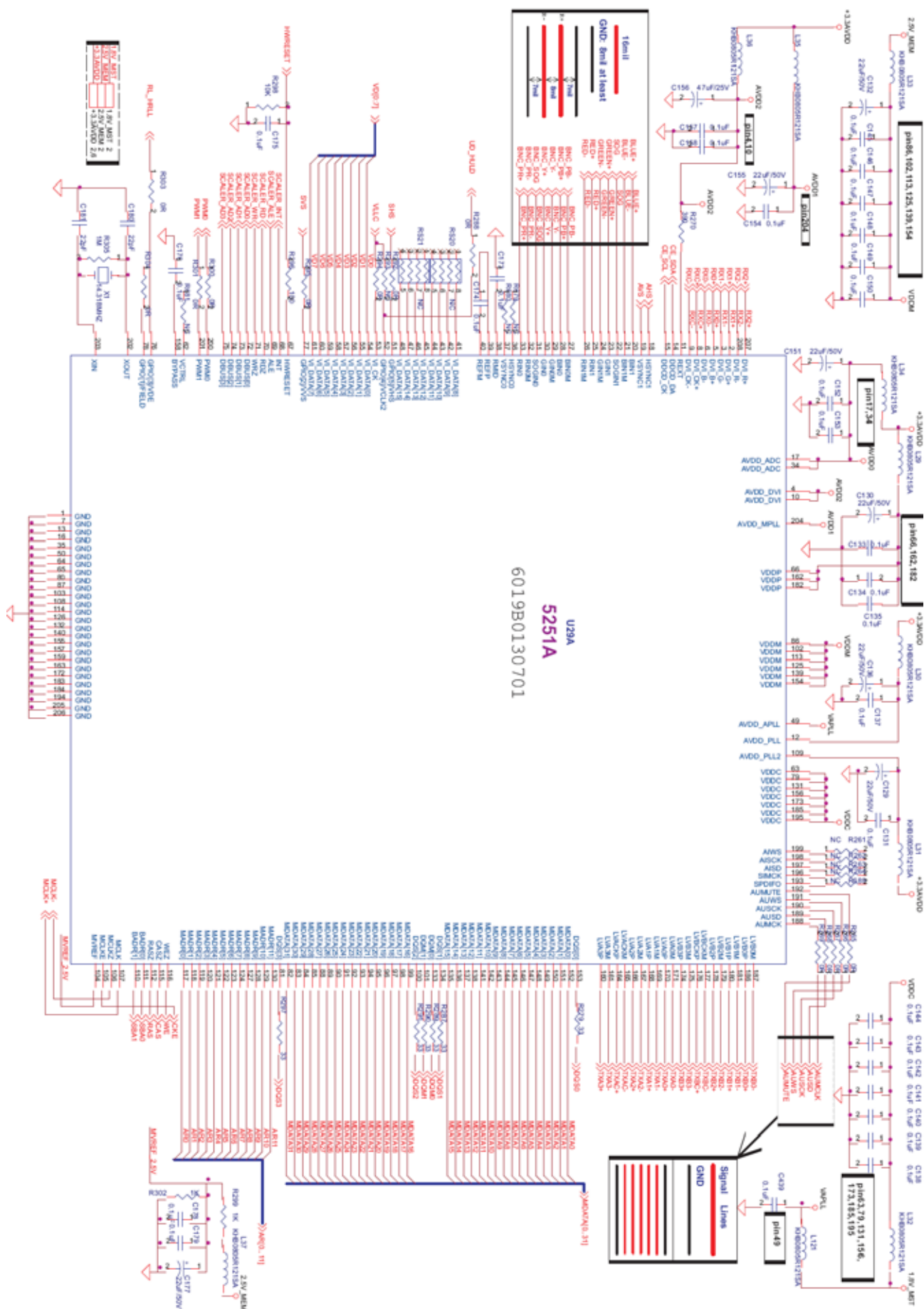
5.4 Analog Input



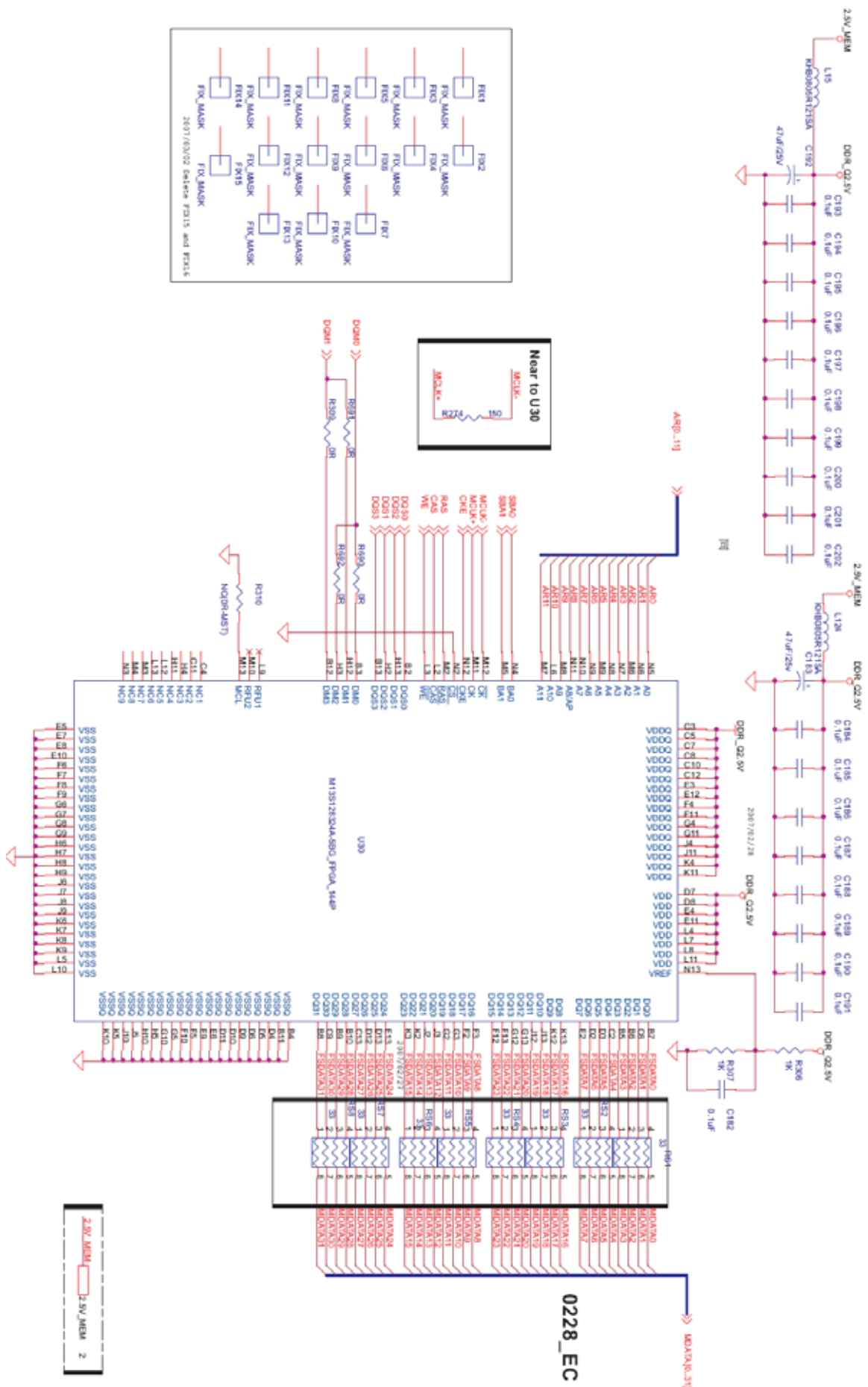
5.5 Analog Switch and Output



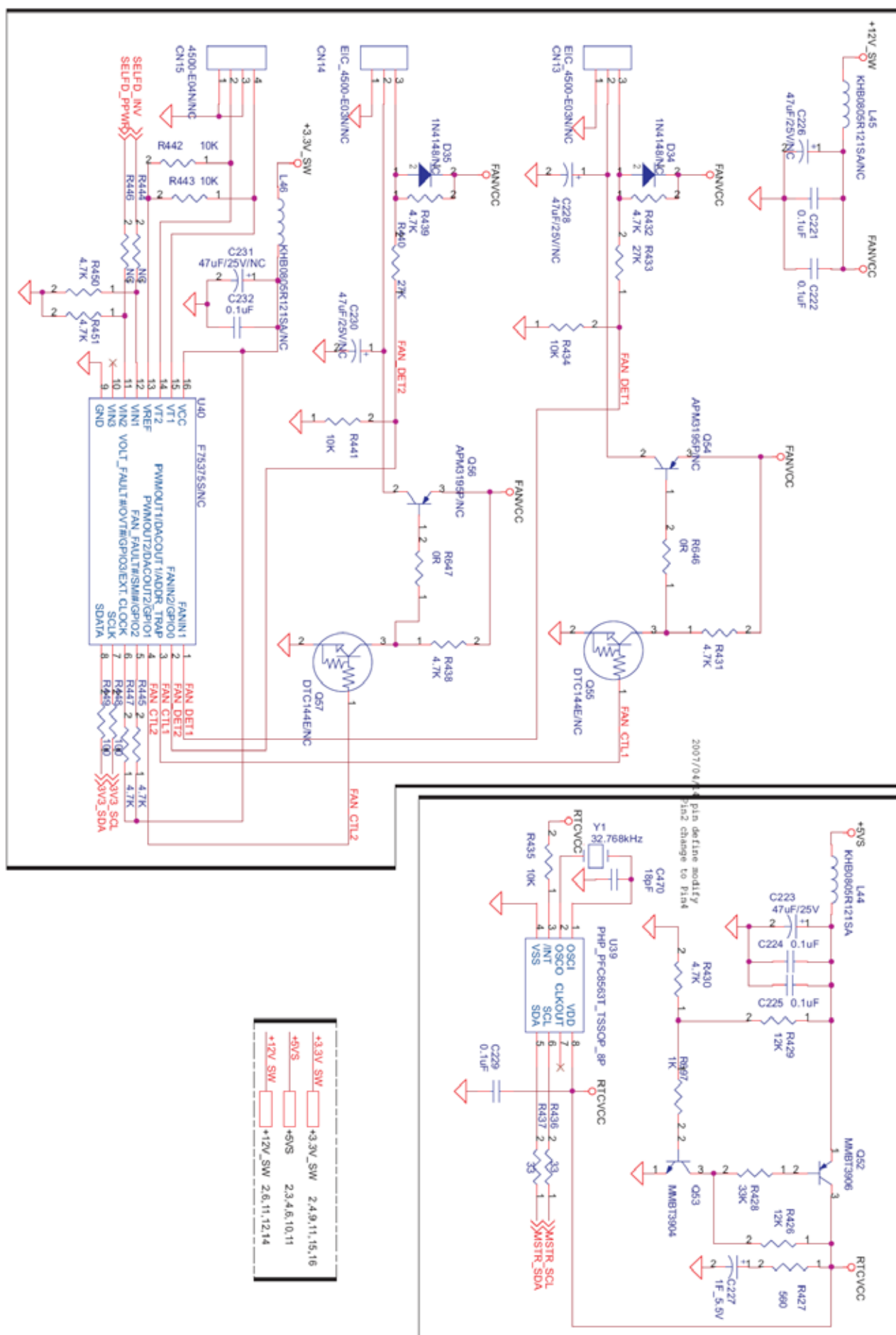
5.6 Scaler



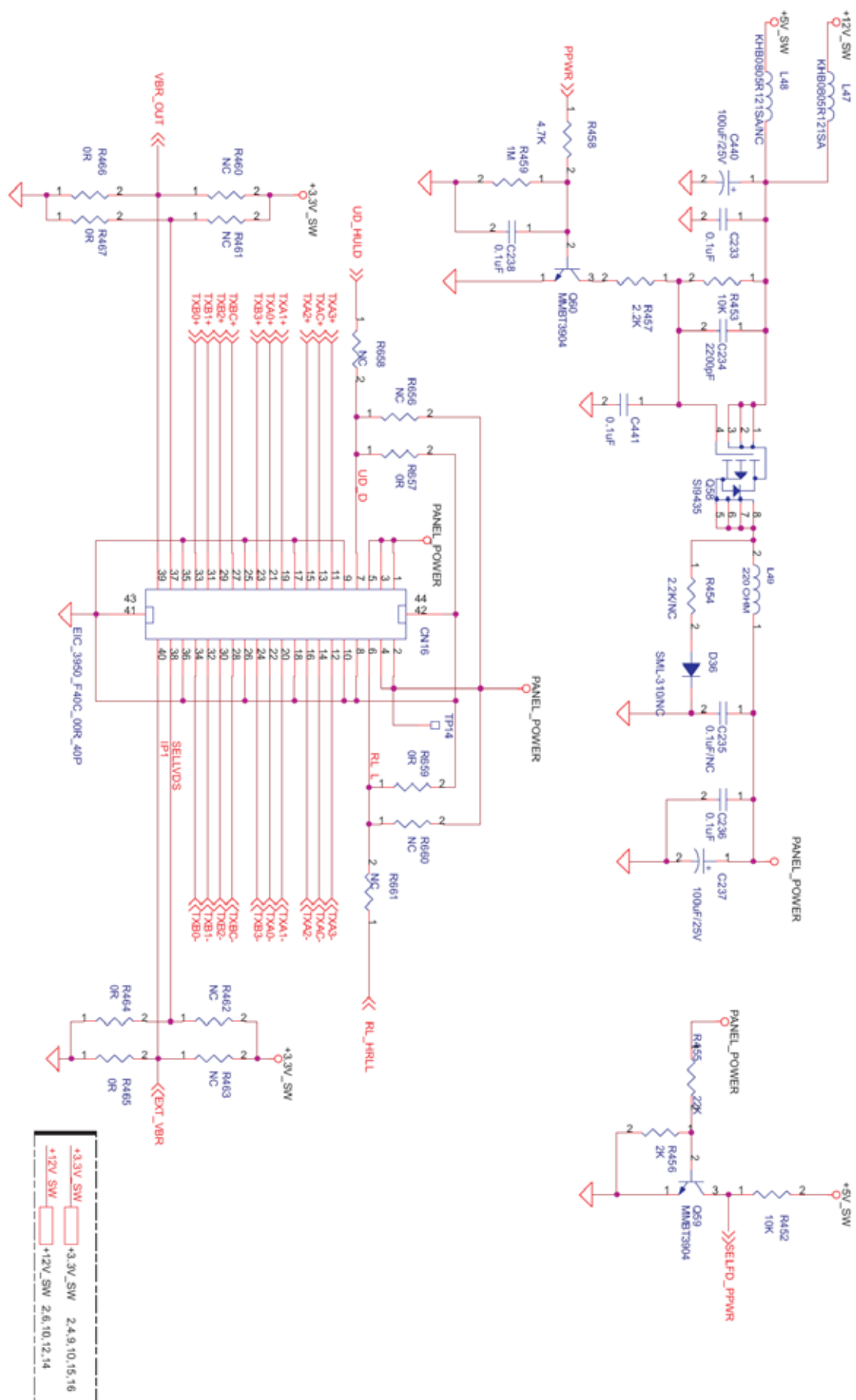
5.7 DDR-SDRAM



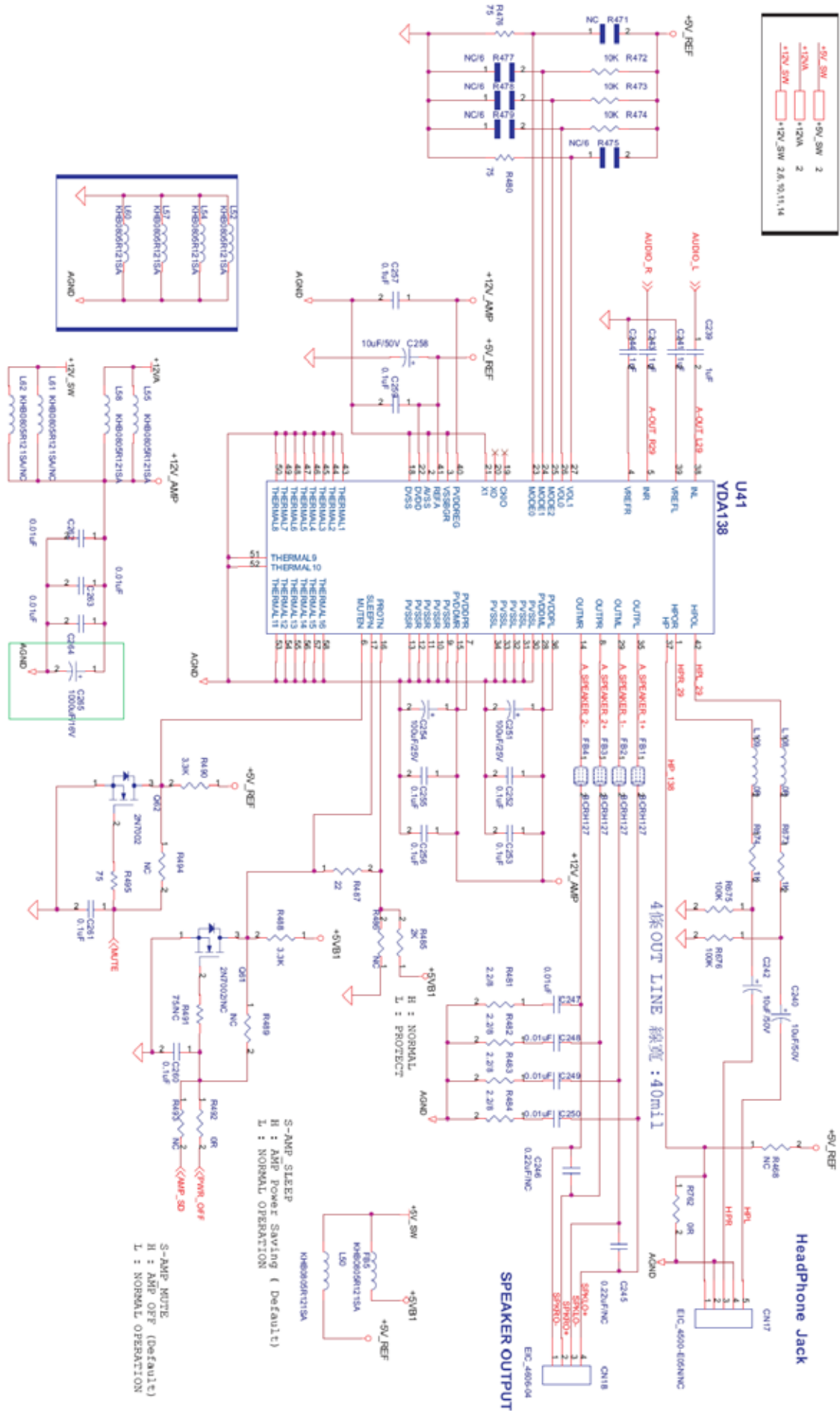
5.9 FAN Control & RTC



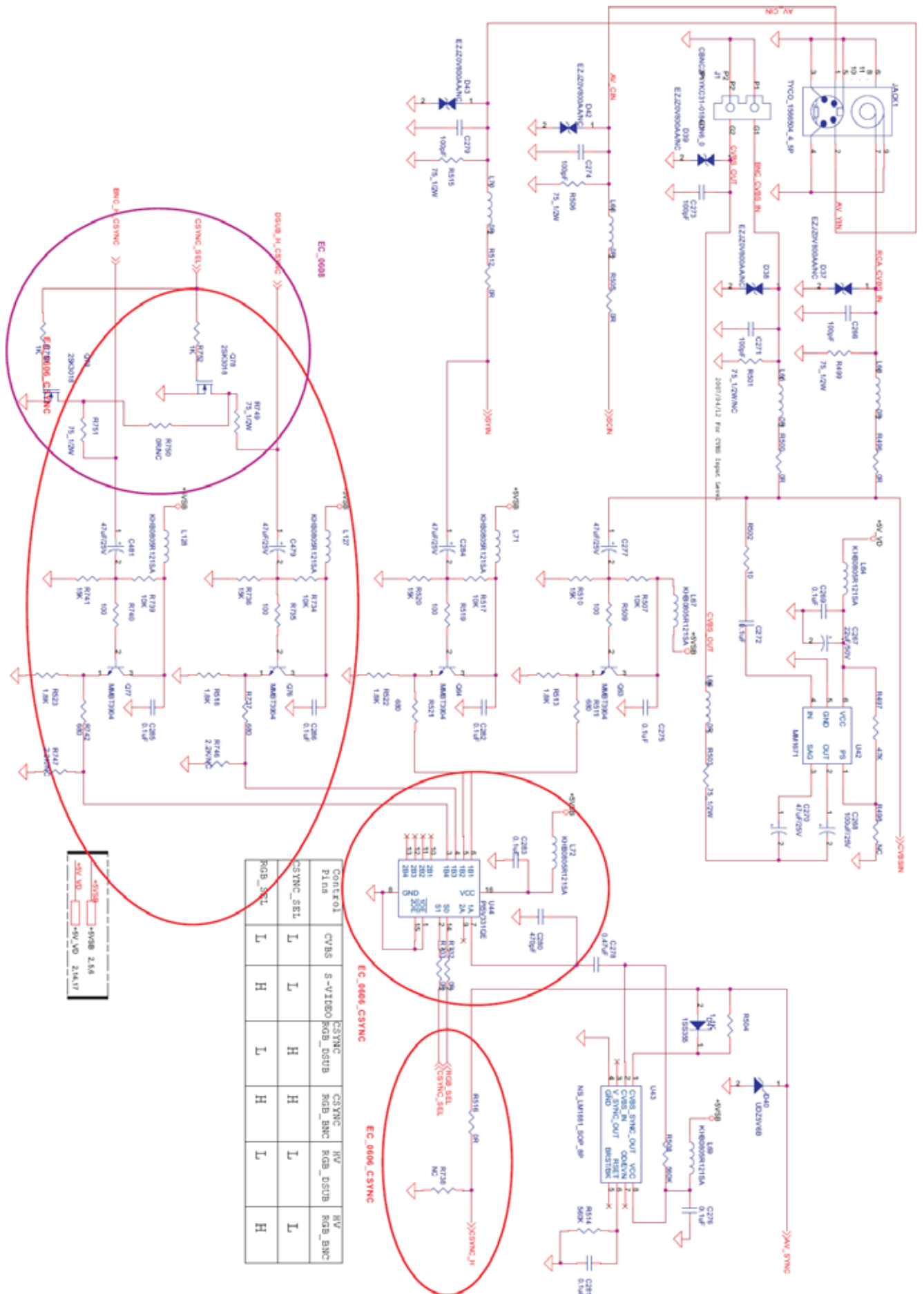
5.10 Panel Interface



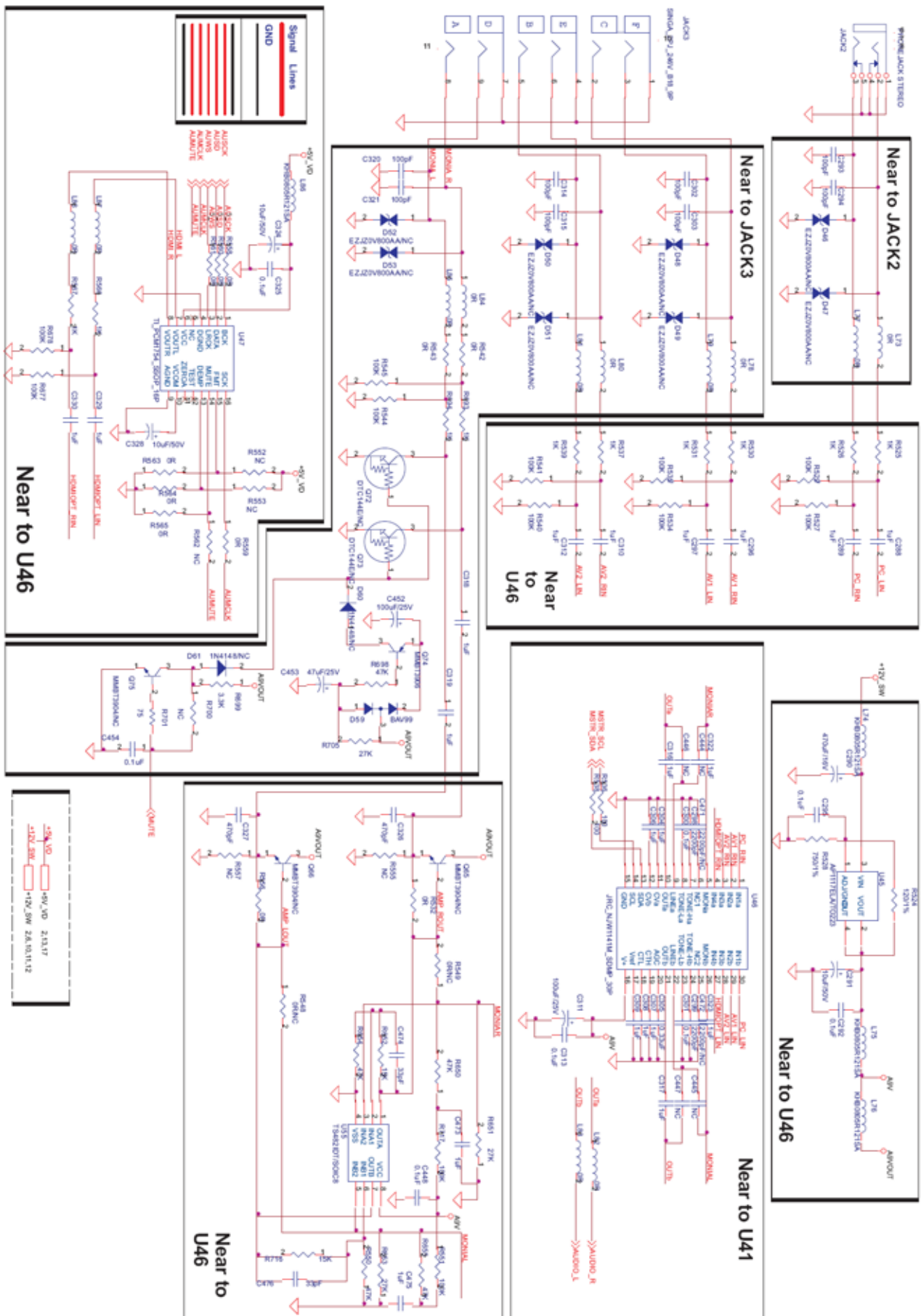
5.11 Audio AMP



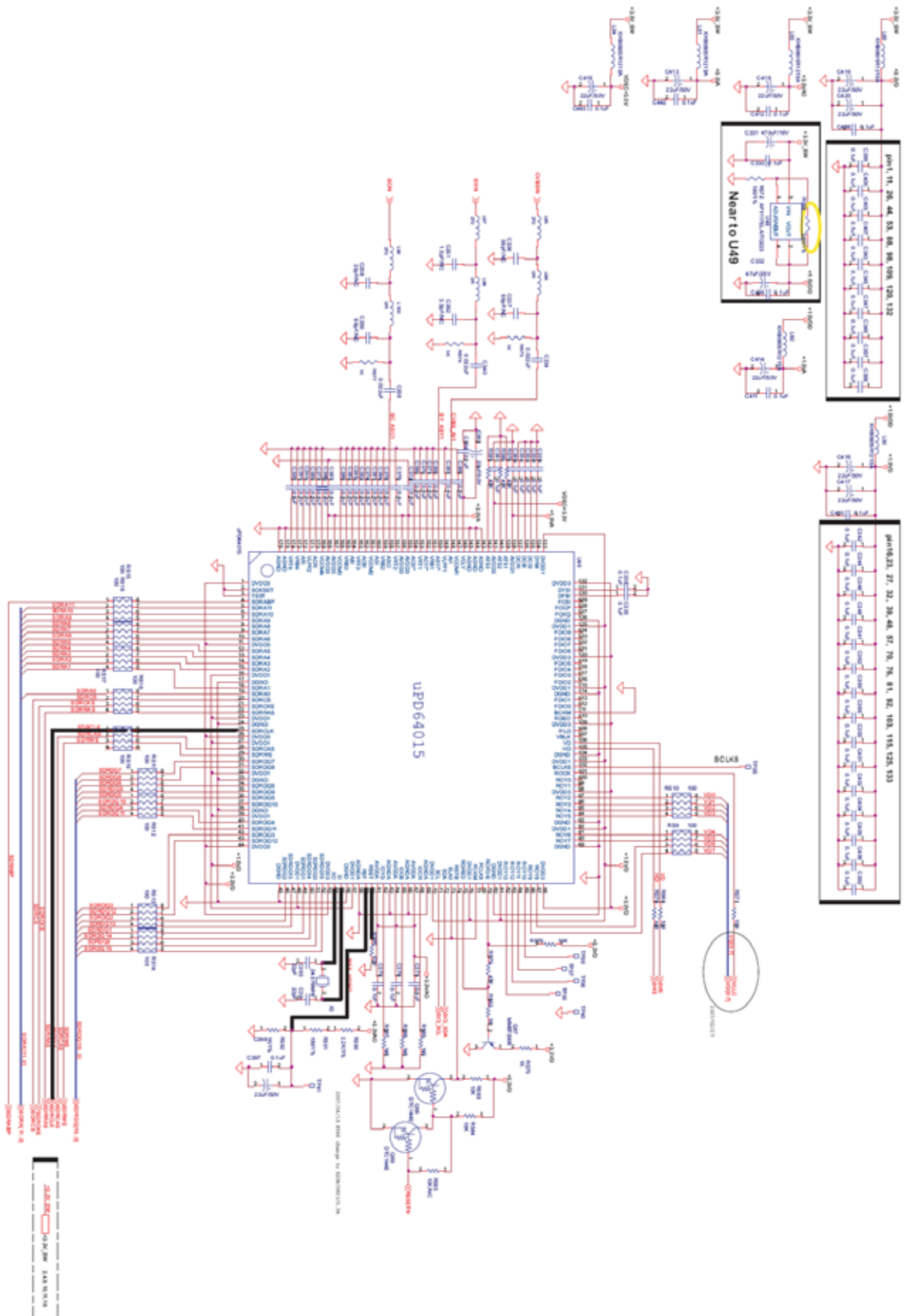
5.12 Video Input



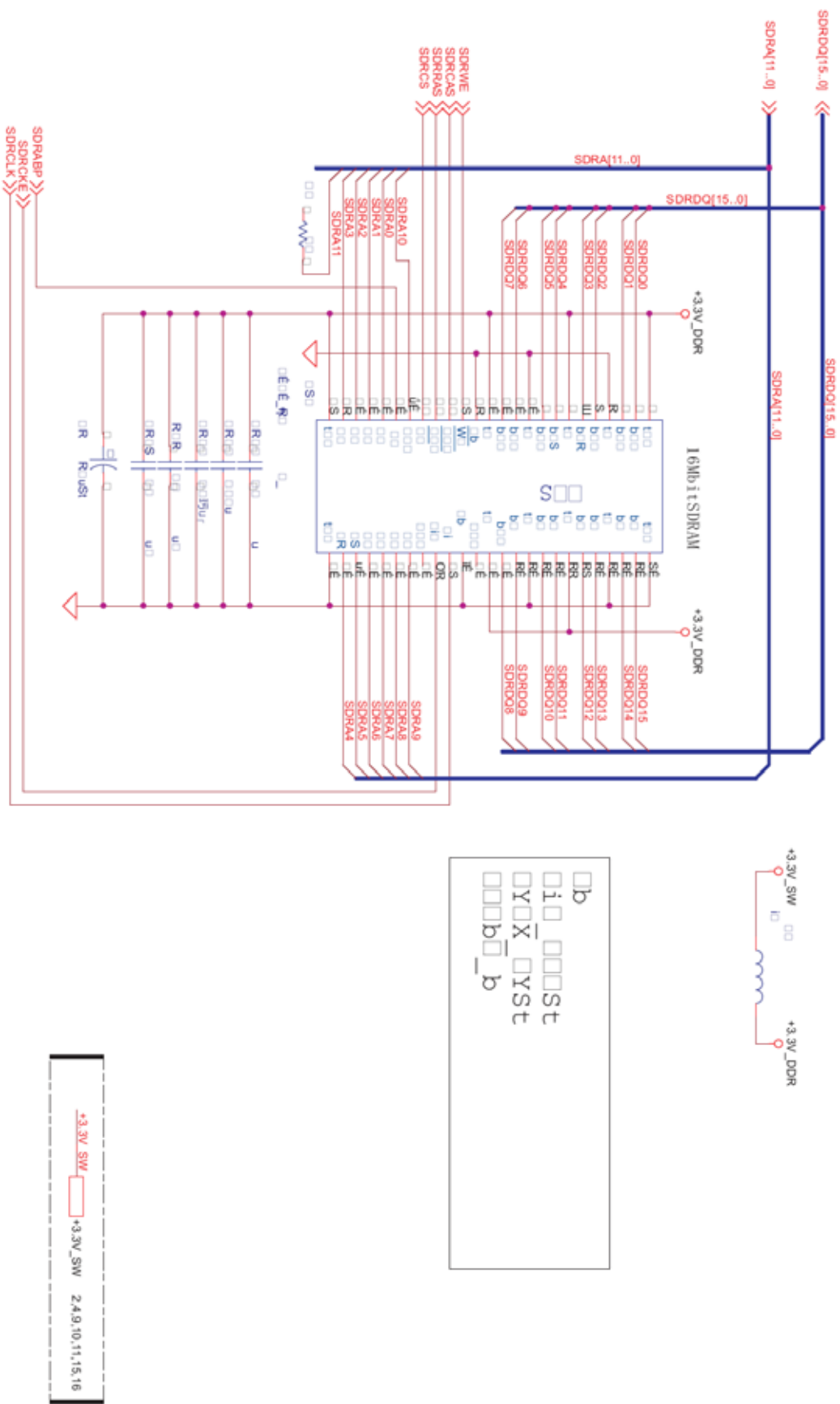
5.13 Audio Input



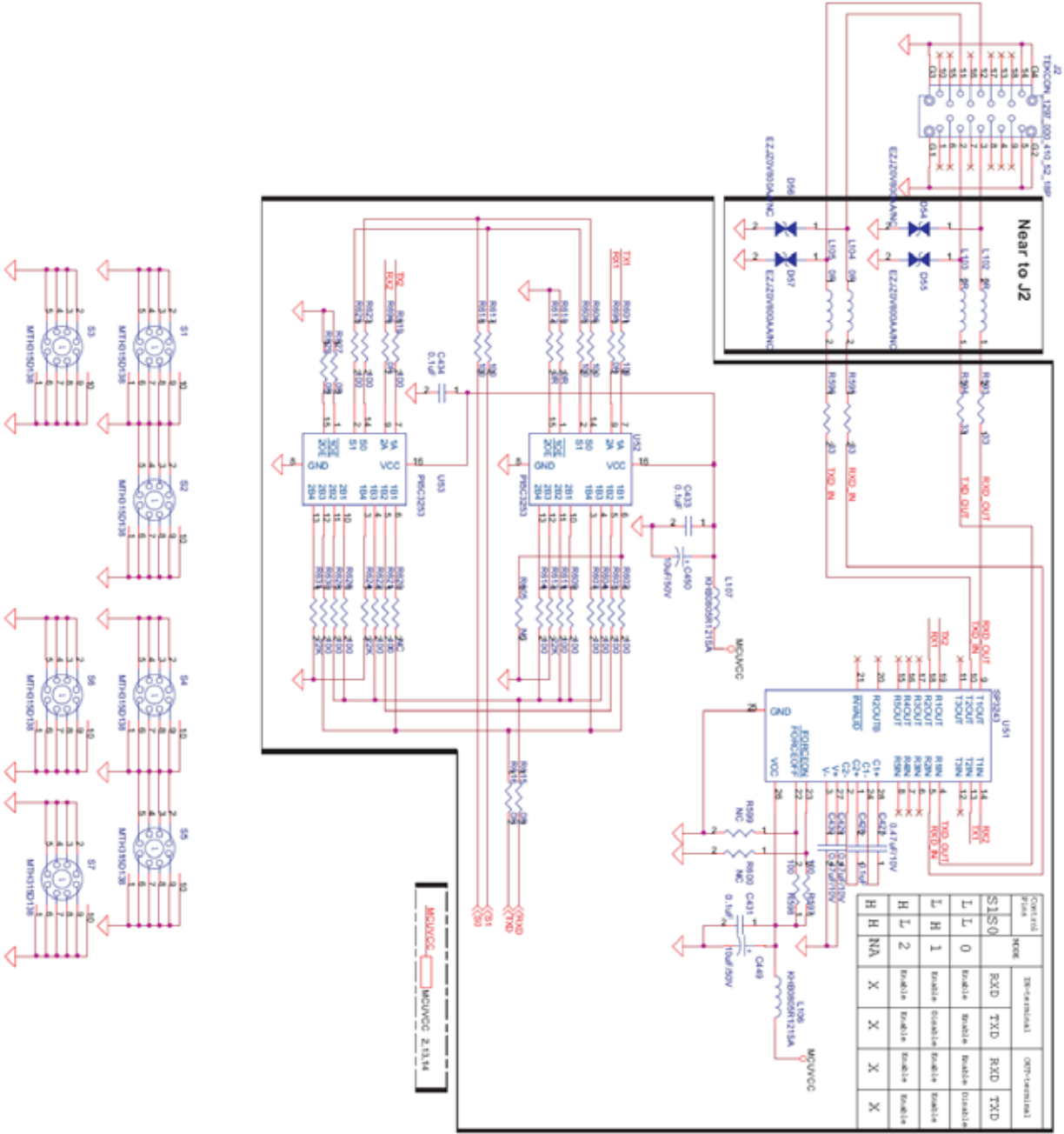
5.14 Video Decoder

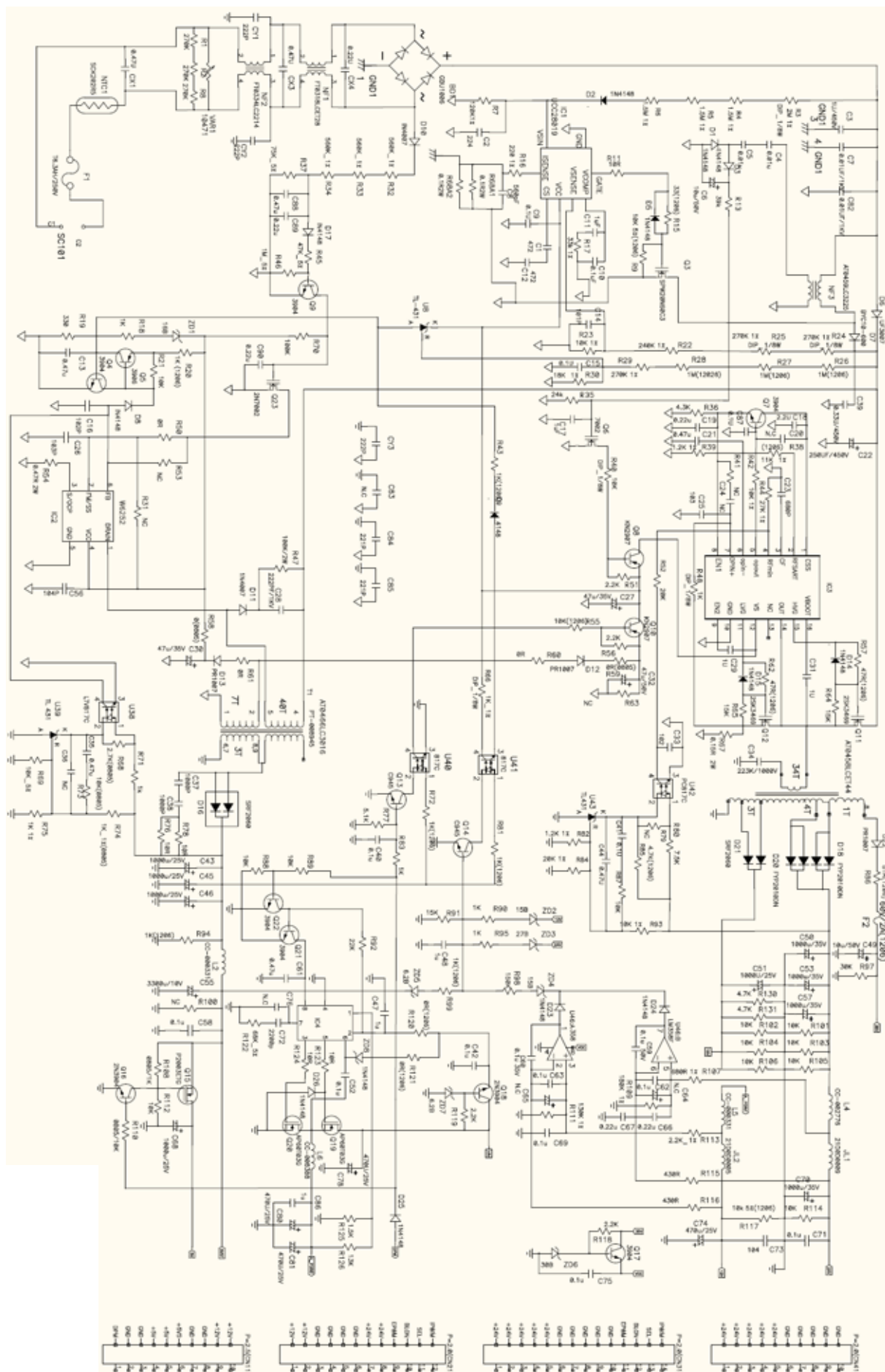


5.15 Video Decoder SDRAM



5.16 RS232



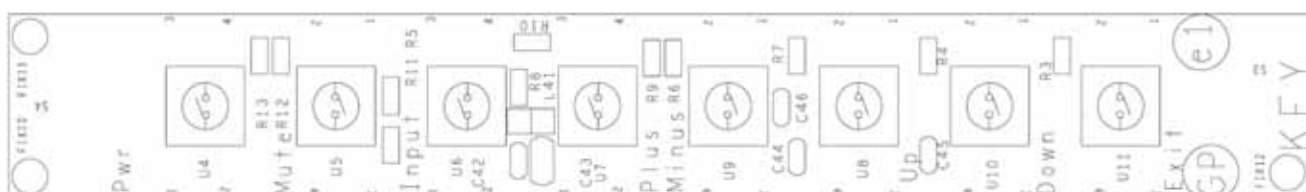


LAYOUT SIDE VIEW

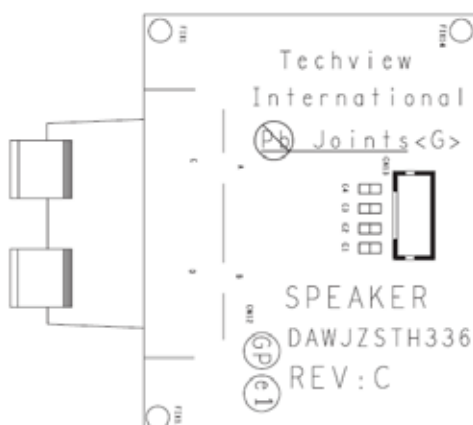
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1. Button board
2. Daughter board
3. LED board
4. Main board
5. Power board

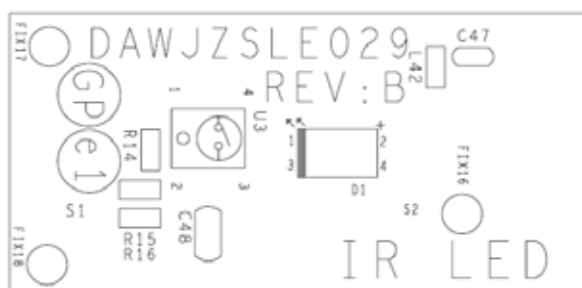
1. Button board



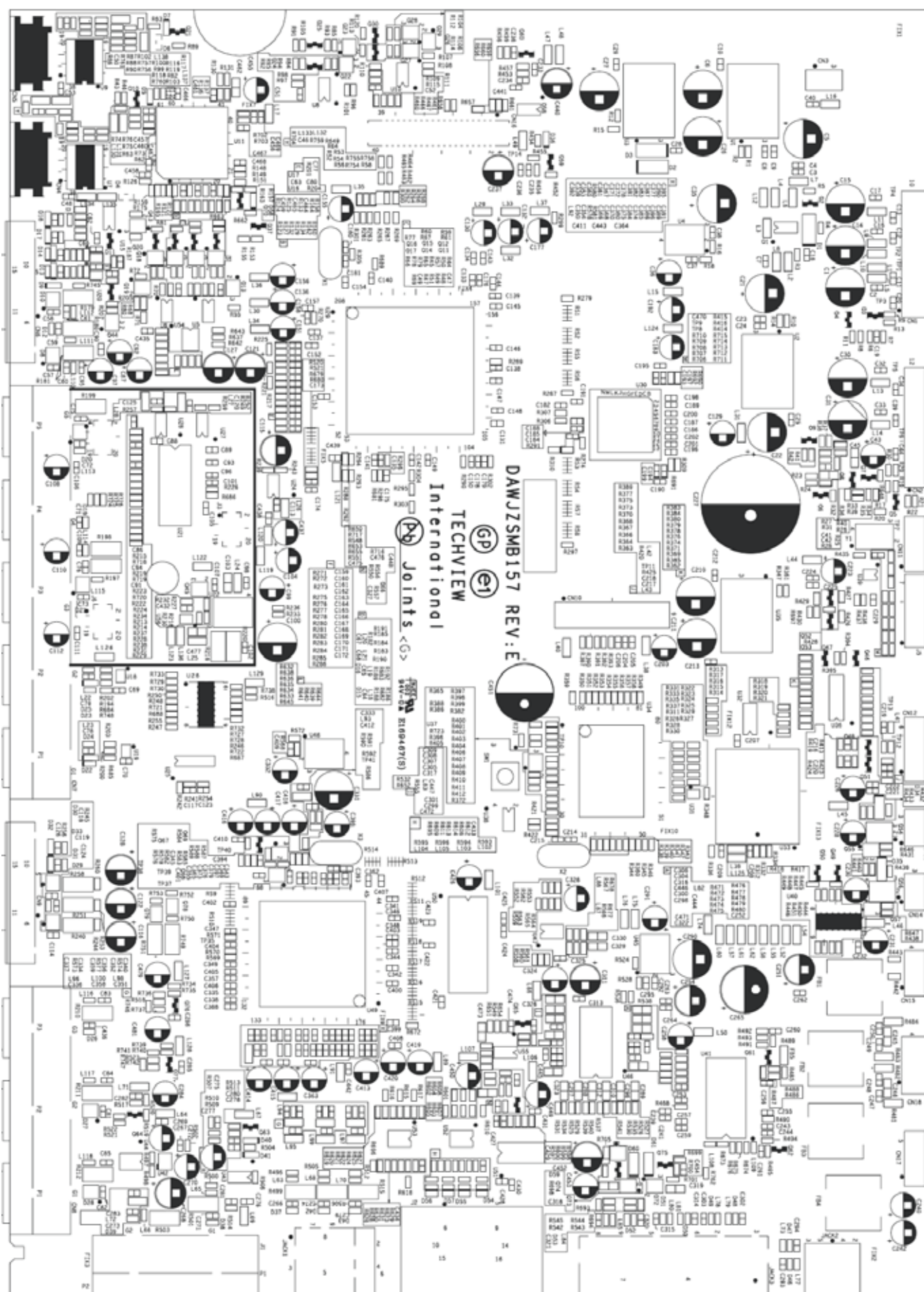
2. Daughter board



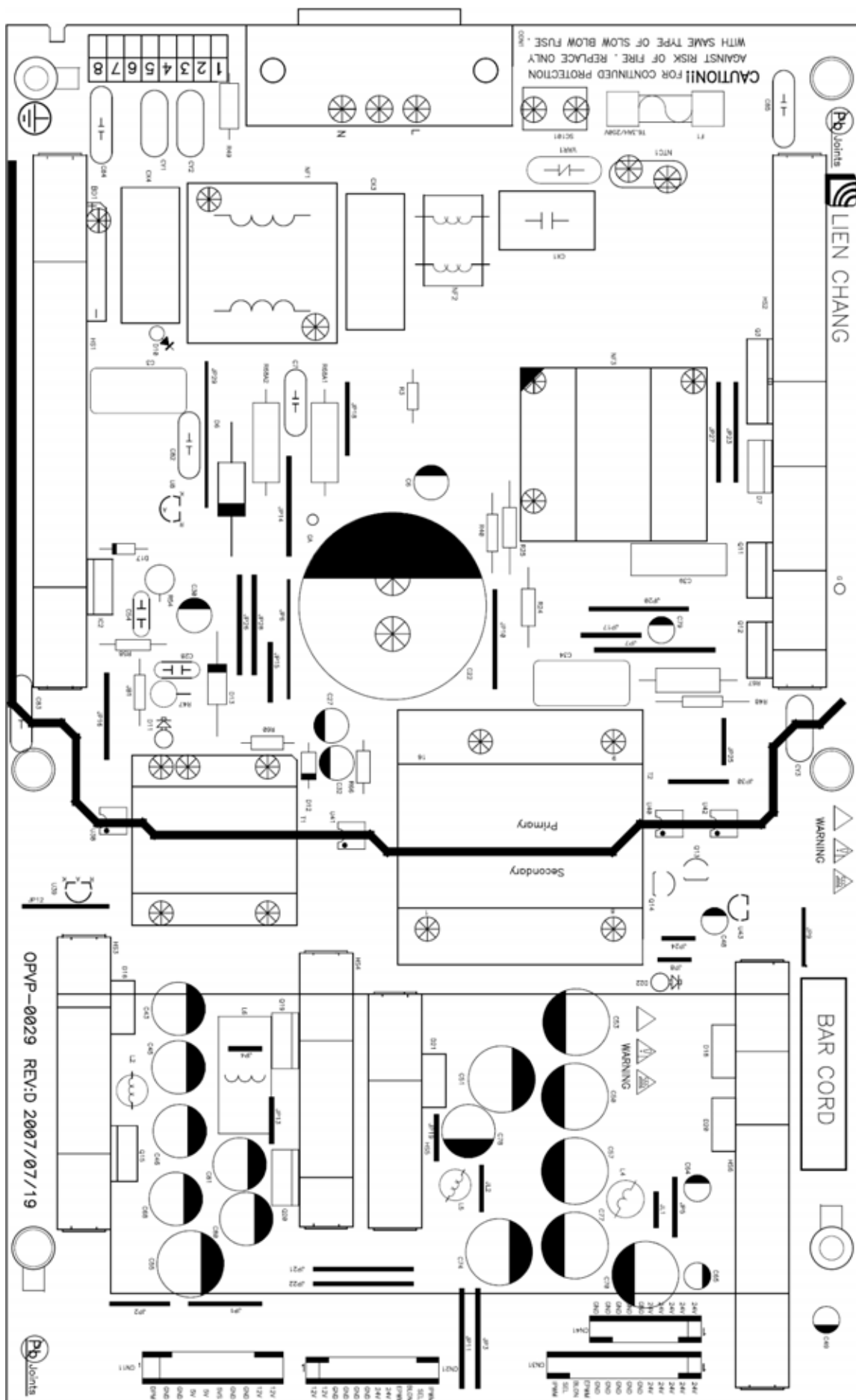
3. LED board

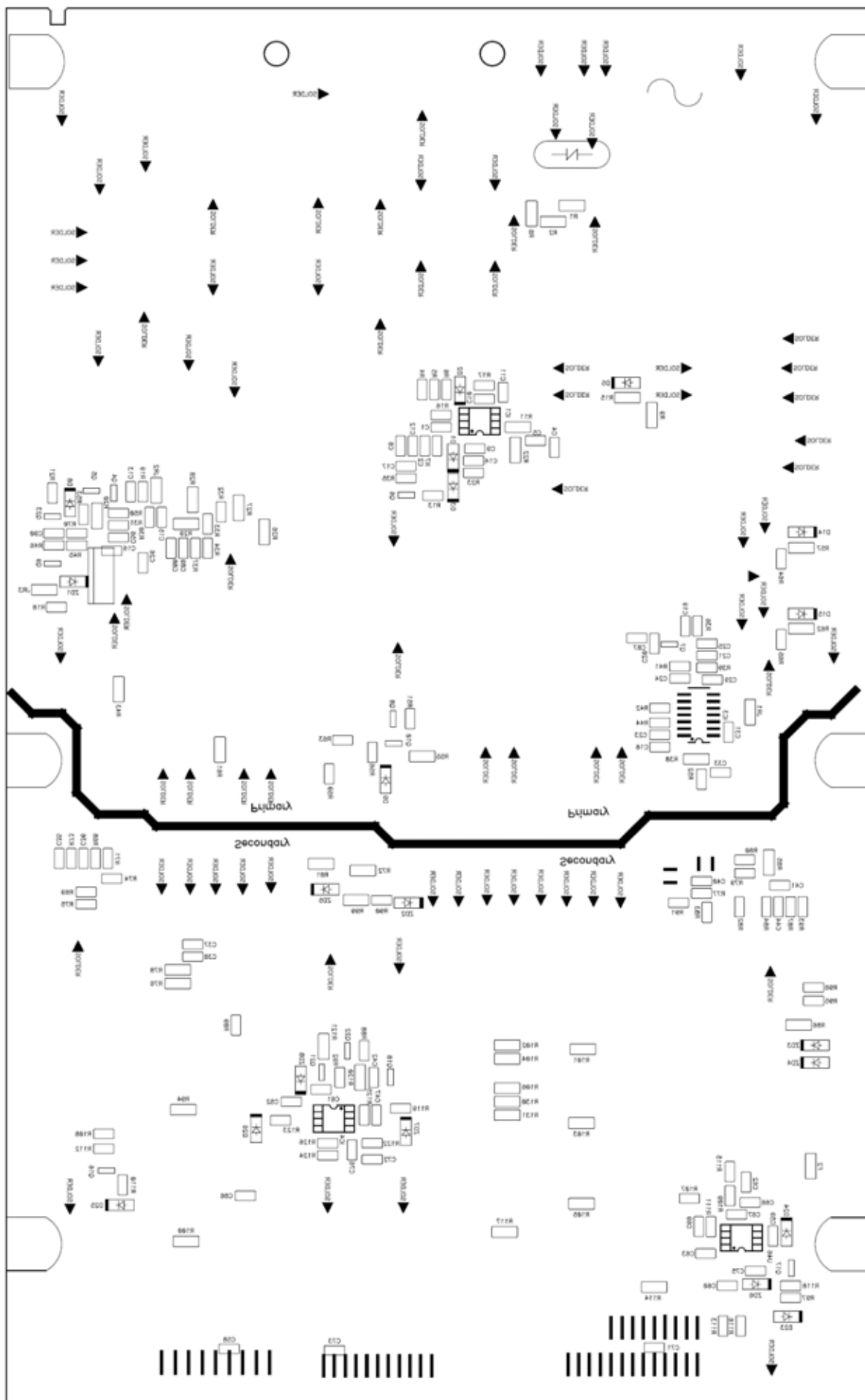


4. Main board

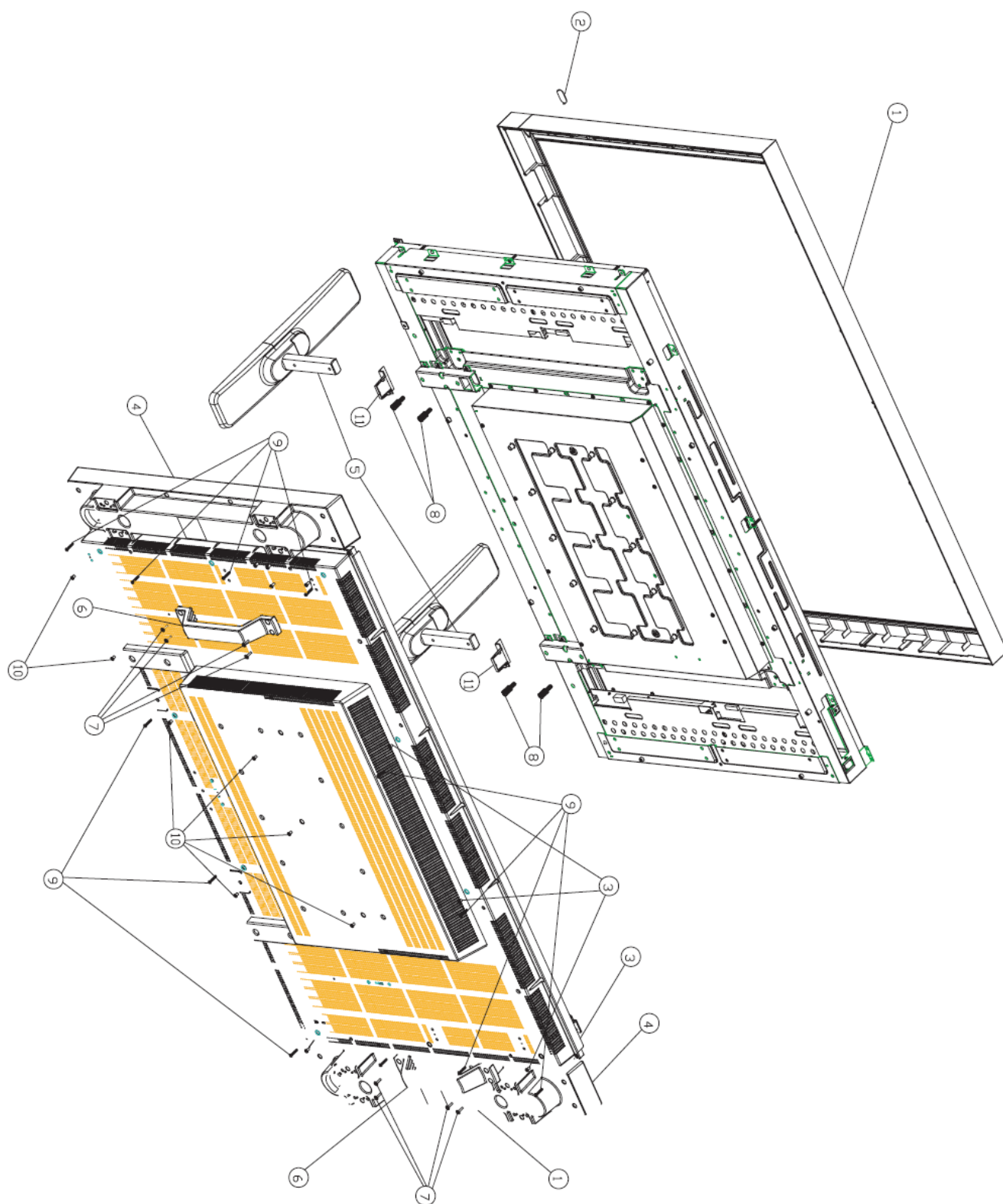


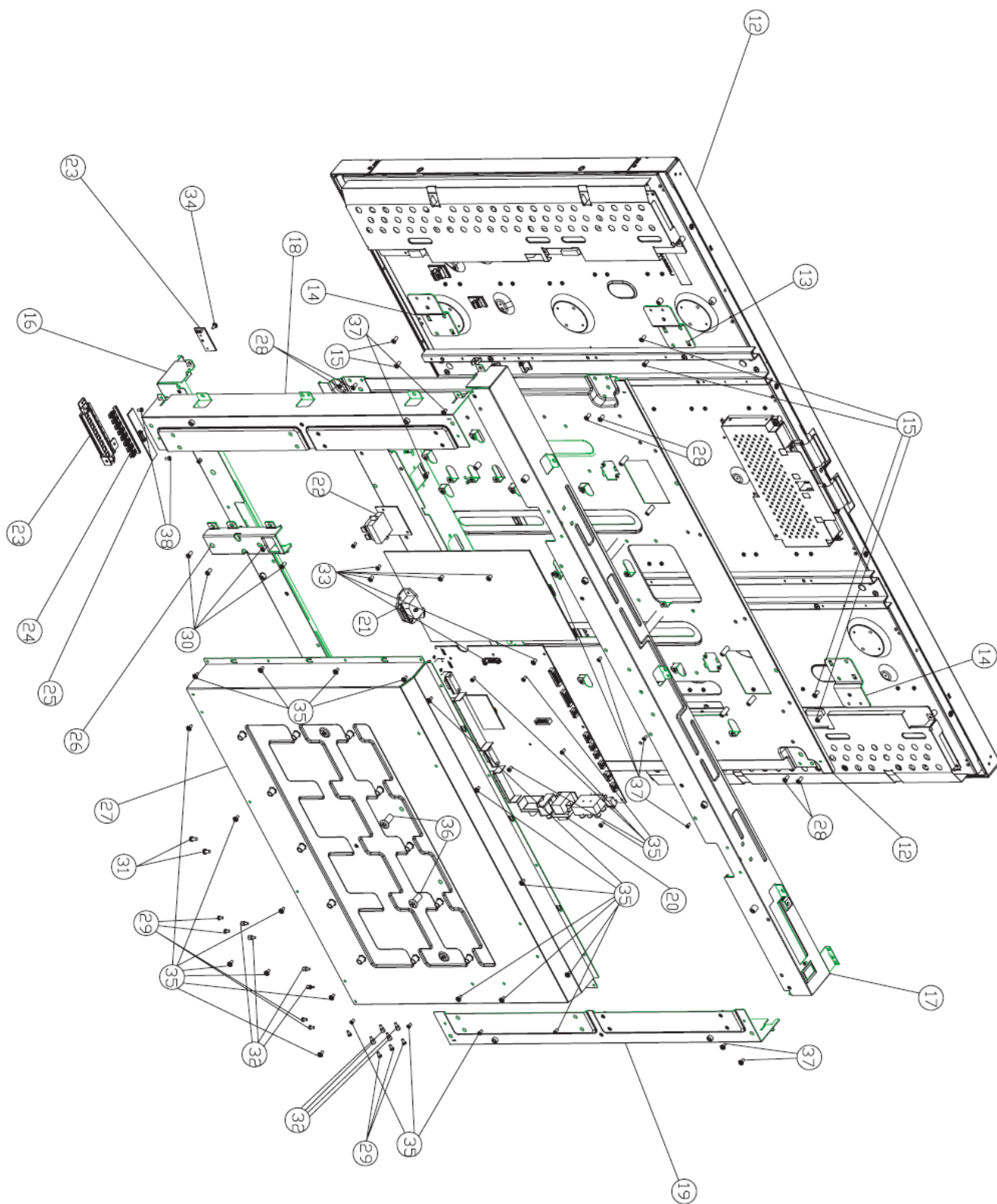
5. Power board





EXPLODED VIEW





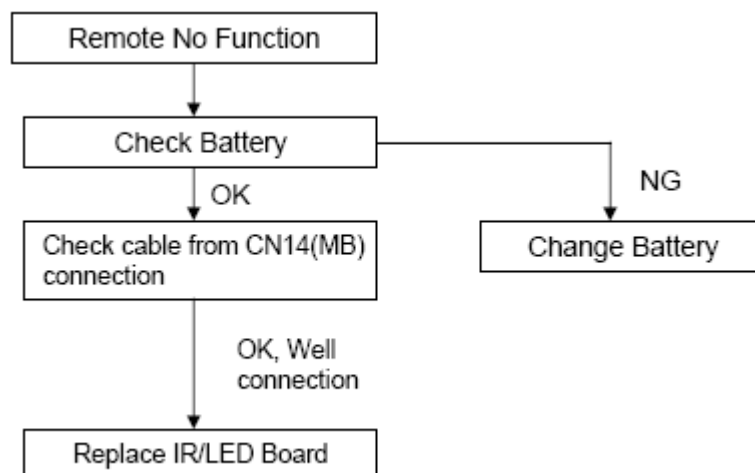
ITEM	PART NO.	DESCRIPTION	Q'ty	ITEM	PART NO.	DESCRIPTION	Q'ty
1	3FDL2LB0000	DL2A LCD BEZEL SUB ASSY	1	26	FBDL2011010	STAND SUPPORT DL2(FBDL2011,REV3A)	2
2	EBDL2012010	IR LENS DL2A(EBDL2012,REV3A)	1	27	CVV1802IM000	EMI FERRITE CORE K5B RC 16X28X9-M2	1
3	37DL2LC0000	DL2A LCD COVER SUB ASSY	1	28	MM40080P.CID	SCREW M4.0*8.0-P(N,NYLON)STEEL	8
4				29	MF30060PBJ5	SCREW F3.0*6.0-P(N)	12
5				30	MM40080ICID	SCREW M4.0*8.0-(N)-NYLOK IRON	8
6	FBDL2012010	METAL HANDLE DL2(FBDL2012,REV3A)	2	31	MM40060PBJ0	SCREW M4.0*6.0-P(N)STEEL	2
7	MS30140PGAD	SCREW M3.0*14.0-P(BLACK,WASH)STEEL	8	32	MBL1004018	IO NUT L11(MBL1004,REV3A)IRON	8
8				33	MM40080BBW1	SCREW M4.0*8.0-B(N,WASHER)STEEL	7
9	MF35180P000	SCREW F3.5*18.0-P(BLACK)STEEL	12	34	MF30070I000	SCREW F3.0*7.0-(BLACK)STEEL	1
10	MM40060P000	SCREW M4.0*6.0-P (BLACK)STEEL	14	35			
11	EBDL2009010	BRACKET COVER DL2A(EBDL2009,REV3A)	2	36	MM60150BCID	SCREW M6*15-B(N)NYLOK STEEL	2
12	AA000460000	LCD 46" LT1460HA01(1920*1080,16MS)	1	37	MS30070P000	SCREW M3.0*7.0 P(N,WASH)STEEL	16
13	FBDL2009010	PANEL SPACER DL2(FBDL2009,R3A)	2	38	MM30050IBJ3	SCREW M3.0*5.0-(N) IRON	3
14	FBDL2010010	PANEL SPACER2 DL2(FBDL2010,R3A)	2				
15	MM60060PBJ0	SCREW M6.0*6-P(N)STEEL	8				
16	FBDL2006010	CORBEL PANEL DOWN DL2(FBDL2006,3A)	1				
17	FBDL2004010	CORBEL PANEL UP DL2 (FBDL2004,R3A)	1				
18	FBDL2003010	CORBEL PANEL L DL2(FBDL2003,REV3A)	1				
19	FBDL2001010	CORBEL PANEL R DL2(FBDL2001,REV3A)	1				
20	31DL2MB0010	DL2A M/B ASSY(W/O CPU)	1				
21	AF288B00003	PWR 288W 90-264V(260*160)OPVP-0029C	1				
22	34DL2DB0000	DL2 DAUGHTER/B ASSY	1				
23	EBDL2011010	BUTTON FRAM DL2A(EBDL2011,REV3A)	1				
24	EBDL2010010	BUTTON DL2A(EBDL2010,REV3A)	1				
25	32DL2BB0000	DL2 BUTTON/B ASSY	1				

TROUBLE SHOOTING

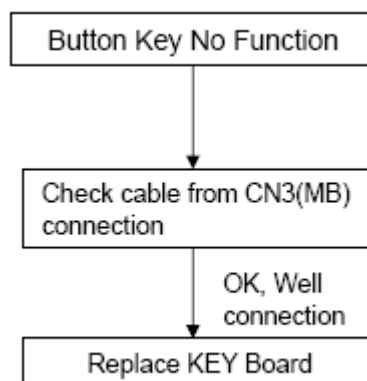
Index of this chapter:

1. Remote No Function
2. Button key No Function
3. No Image appear
4. No Audio

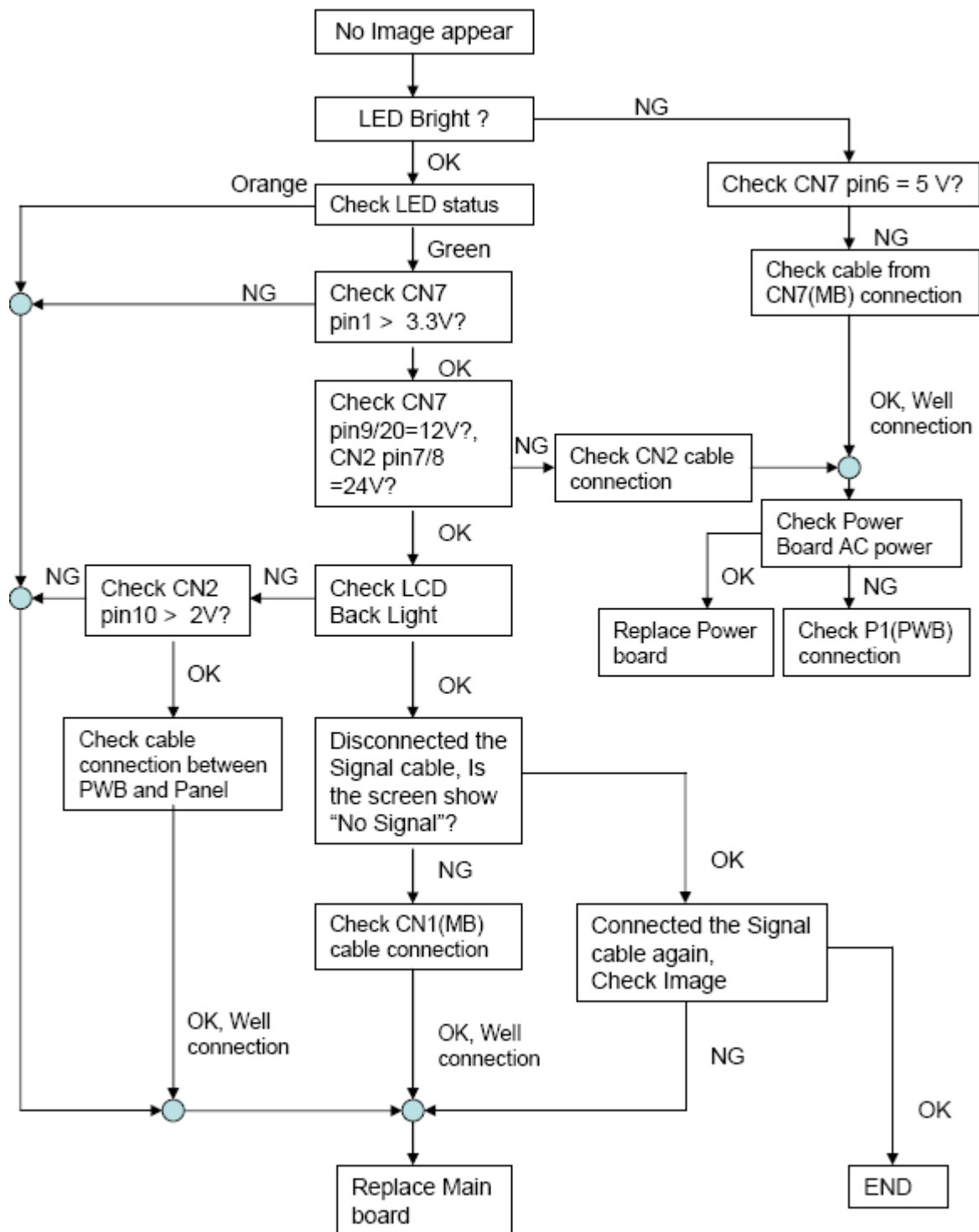
1. Remote No Function



2. Button Key No Function



3. No Image appear



4. No Audio

